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IMPLEMENTING THE EU WATER FRAMEWORK DIRECTIVE

TOWARDS INTEGRATED WATER MANAGEMENT IN EUROPE

Elli Louka

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IMPLEMENTING THE WATER FRAMEWORK DIRECTIVE:
TOWARDS INTEGRATED WATER MANAGEMENT IN EUROPE

Elli Louka, Editor

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Preface

The European Pubic Law Center's decision to co-sponsor with the DG Research of the European Commission the Marie Curie study on the implementation of the legislation that sets the framework for the management of water resources in Europe springs from its vision as a center that promotes interdisciplinary research and the view of public law as an instrument of change in the European society.

Scholars that have dealt with water law in the European context often have underlined the fragmentation of such law as various instruments are adopted to address concerns spanning from water sharing to water pollution that are not often conversant with each other. No wonder the decision to adopt a constitutive instrument that will unify under a single framework water management in Europe has been hailed as extremely timely and fitting for the future development of European pubic law and, most importantly, for the betterment and restoration of many water resources in Europe.

The conference proceedings edited by Dr. Elli Louka include numerous contributions on the implementation of the Water Framework Directive. The conference provided a forum for the exchange of perspectives and best practices on the institutional development that is necessary for the implementation of the directive. The proceedings provide excellent insights on the type of institutional development that is necessary for the integrated water management in Europe both at the domestic level and transnationally. The European Public Law Center takes great pride in organizing this Marie Curie conference and in assisting Dr. Louka in the execution of this Marie Curie study.

Professor Spyridon Flogaitis
Director EPLC
December 2007

Foreword

The sound management of water resources is central to the pursuit of sustainable development activities. The European Union, with the adoption of the Water Framework Directive in 2000, has set the fundamentals for integrated management of water resources in Member States and across national boundaries.

Water policy in the European Union is not isolated from economy and development. Article 6 of the Treaty establishing the European Community clearly states "Environmental protection requirements must be integrated into the definition and implementation of the Community policies and activities…in particular with a view to promoting sustainable development."

As such, environment must be integrated into all other policies, including the Cohesion Policy. The Cohesion Policy is the expression of solidarity among the EU Member States, as its purpose is to strengthen economic and social cohesion through a harmonious territorial development. Moreover, the new Reform Treaty (Lisbon Treaty) of 2007 has explicitly introduced territorial cohesion. Thus, the reduction of disparities among regions is the focus of the contributing Funds – the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund. The ERDF can co-finance, *inter alia*, projects for the protection of water resources, water supply, urban wastewater treatment, integrated strategies for clean transport and management of sea traffic, integrated management of coastal zones, as well as the protection of wetlands and marine resources.

However, whilst most Cohesion Policy funding provides opportunities for improvement and protection of the environment, including the management of water resources, it is up to Member States to decide what their priorities are and how to spend their funding (bottom up approach). It is at this juncture that the implementation of the Water Framework Directive is becoming crucial. Only Member States that have implemented the Directive and have created institutions that will ensure compliance with its requirements can develop sufficient problem-solving, capacity and the foresight to address water infrastructure needs.

These timely Conference Proceedings address the issue of institutional development as a benchmarking tool for deciphering the nuts-and-bolts of the implementation of this important Directive in Member States. The importance of institutional development in the implementation of environmental legislation cannot be stressed enough. While an environmental measure can be effective as long as it enjoys support by its proponents, such support can evaporate with the passage of time unless the proper institutions are put in place that allow for efficient implementation and enforcement. The establishment of adequate administrative capacity is not only necessary to ensure that EC rules are respected; it is also a necessary prerequisite in order to prepare pipelines of projects of sufficient quality to allow for the commitment of EC funding. The Water Framework Directive requires that a number of institutional mechanisms be set up for its implementation, including establishing river basin authorities, monitoring agencies and licensing bodies. These institutional mechanisms must be able to communicate and coordinate both horizontally and vertically. Finally, public participation proceedings have to be initiated in all Member States that would allow for the achievement of participatory democracy within Europe.

These Conference Proceedings, edited by Dr. Elli Louka, provide rich insights into the implementation of the Water Framework Directive in Member States. Member States are deciding on the appropriate structures for the implementation of the Directive. Some Member States have decided to re-orient existing institutional structures for the implementation of the Directive, while other States have started to create new authorities for the management of their water resources. Whichever choices are made, the main issue is the commitment of such authorities to implementation and the pursuit of integrated water management in Europe. In addition, Member States have engaged in transnational developments through the creation of international river basin districts and authorities in many transnational river basin basins. Member States have also been concerned with the practical application of public participation procedures through the engagement of a number of governmental and non-governmental organizations in the management of water resources. While the experience with public participation has enjoyed differing degrees of success in various countries, they can be seen as first efforts to apply some of the principles of participative democracy in Europe as required by the Aarhus Convention.

Overall, these Conference Proceedings provide an excellent overview of water management in specific Member States and transnationally, as well as an insight into public participation in river basin management. Approached from the perspective of practitioners, for whom water is not an academic endeavor but an everyday reality, these Proceedings will be of tremendous value to those interested in the implementation of the Water Framework Directive and the EU environmental legislation, not only in Europe but in other areas of the world.

George Kremlis, Head of Unit, "Cohesion Policy & Environmental Impact Assessments", DG Environment, European Commission

December 2007

Acknowledgments

The conference proceedings included in this volume are the results of a Conference that took place in Athens, Greece on May 11-12, 2006. The theme of the conference was “Implementing the EU Water Framework Directive: Towards Integrated Water Management in Europe.” The conference was supported by the European Commission, Directorate-General for Research, through a Marie Curie fellowship. I am deeply honored to have been a Marie Curie fellow. The fellowship provided me with the opportunity to delve into the fascinating area of future of water resources management in Europe. My many thanks to Raffaele Liberali, Director “The human factor, mobility and Marie Curie Activities,” during the duration of the fellowship, for his support and Alessandra Luchetti, Deputy Head of Unit, Marie Curie Actions Fellowships whom I had a pleasure to meet during my visit to Brussels. Mr. Pavlos Mouratidis attended the Conference and I would like to thank him for his insightful contribution about the future of research in Europe. I would like to thank George Kremlis, Head of Unit, Cohesion Policy and Environmental Impact Assessments, Directorate-General for Environment for participating in the conference and offering pointed introductory remarks.

This research was further co-sponsored by the European Public Law Center. My many thanks to Professor Spyridon Flogaitis, Director of the European Public Law Center, for providing the appropriate environment for me at the Center to pursue the academic goals of this study.

I would like to thank the chairs of the panels, Konstantinos Menoudakos, Chairman, Fifth Chamber, Hellenic Council of State, Professor Glykeria Sioutis, Professor Evangelos Raftopoulos and Professor Georgia Giannakourou for guiding the conference and stirring a number of stimulating discussions.

I am grateful to Professor George Papadimitriou for all his support during my stay in Athens and all through the organization of the conference. Professor Petros Pararas was particularly helpful in our discussions about the protection of the environment and human rights. I am immeasurably grateful to my teacher of international law Professor Emmanuel Roukounas for his support and for always helping me see things in the proper context. Maria Karamanof, Justice of the Hellenic Council of State, helped me understand, through a number of enlightening discussions, the problems of implementation in the wider European reality.

My many thanks to the conference participants for their contributions. This study could have not been completed without their participation for which I am honoured and grateful.

Dr. Elli Louka
December 2007

Abbreviations

CRED: Commission de Regime des Eaux de Danube
DRPC/Danube River Protection Convention
EG/Expert Group
ELO/European Landowners' Organization
EU/European Union
FAO/Food and Agriculture Organization
FASRB/Framework Agreement for Sava River Basin
ICPDR/International Commission for the Protection of the Danube River
ICPR/International Commission for the Protection of Rhine River
ICSRB/International Commission for the Sava River Basin
ISC/International Scheldt Commission
MOE/Ministry of Environment
RBMPs/River Basin Management Plans
RDPs/Rural Development Programs
REC/Regional Environment Program
UN/ECE United Nations Commission for Europe
UNDP/United Nations Development Program
UNEP/United Nations Environment Program
UNESCO/United Nations Educational, Scientific and Cultural Organization
WFD/Water Framework Directive
WG/Working Group
WWF/World Wide Fund for Nature

Glossary

Artificial water body: Water body created by human activity

Classification of waters: The WFD requires that member states classify their waters based on their ecological status. Based on their ecological status, waters can be classified as of high, good, moderate, poor and bad status

Common strategy for implementation: The strategy adopted by the water directors and the Commission to facilitate the implementation of the WFD

Competent authorities: Competent authorities must be established by member states for the purposes of implementation of the WFD

Diffuse sources (of pollution): Diffuse sources of pollution are non-point sources of pollution — that is sources of pollution that are difficult to identify such as pollution coming from agricultural fields due to the use of pesticides and fertilizers

Ecological status: Ecological status is used to classify surface waters. Waters are classified as of good ecological status when they meet the standards of the directive

Environmental objectives: These objectives are set in article 4 of the directive. These are the objectives that must be achieved when implementing the directive

Good status: Waters are defined as being of good status when both their ecological and chemical status is at least good

Guidance documents: Documents issued by working groups within the framework of common implementation strategy to guide the implementation of various components of the directive

Heavily modified water body: A water body that has been subjected to physical alterations due to human activity as designated by member states in accordance with Annex II of the WFD

Intercalibration exercise: The goal of the intercalibration exercise is to harmonize the understanding of ‘good ecological status’ in all member states, and to ensure that this common understanding is consistent with the definitions of the directive. The intercalibration exercise is mentioned in Annex V section 1.4.1 of the WFD

International River Basin Districts (IRBDs): Member states have to designate international river basin districts in which they will cooperate for the management for their shared water resources. International River Basin Districts include that of Danube River, the Scheldt River, the Sava River and the Rhine River

Pilot river basins: Pilot river basins were used to test the implementation of the WFD and the application of the guidance documents

Programme of measures: A programme of measures identifies in detail the actions to be taken within a river basin district to meet the environmental objectives of the directive

Reference conditions: Reference conditions are to be established for various water bodies so as to provide a baseline against which to measure the effects of past and present impacts on water

River basin districts: Member states must identify the river basins lying within their territory and assign them to river basin districts

River Basin Management Plans (RBMPs): Plans adopted by the competent authorities established by member states for the management of a river basin district. RBMPs must include the characteristics of the basins, the objectives that need to be achieved as well as an action program or program of measures for the reduction of pollution in the basin

River basins: A river basin is an area of land drained by a river and its tributaries and other types of surface water

Strategic coordination group: Group comprised of the European Commission and the water directors to guide the implementation process

Water Framework Directive (WFD): The directive adopted by the European Union to establish the framework for the management of water resources

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Overview of Integrated Water Resources Management and the Implementation of the Water Framework Directive in Europe

Elli Louka

The conference proceedings focus on the implementation of the Water Framework Directive (WFD), the legislation adopted by the European Union to implement integrated water resources management in Europe. Integrated water resources management is defined as management of water resources taking into account both the quality and quantity of water resources. Large amounts of water of the wrong quality (such as polluted water) are of no use for drinking purposes, irrigation, recreation or other sustainable development activities. Integrated water resources management means also the integration of water management into land use planning, as it is often that polluting activities on land impair water quality.

The application of integrated water resources management has eluded policymakers because of the large sectors of the economy that have to be 'integrated' to make possible integrated water resources management. For instance, integrated water resources management means that agricultural and industrial discharges into the waters need to be controlled to allow for other uses and to reduce the costs of water treatment. Integrated water resources management means that the technological development of rivers, including dams and flood control devices, should do not change the morphology of rivers to an extent that affects detrimentally the environment and the sustainability of protected areas.

To achieve the desired integration, one of the premises of integrated water resources management is river basin district management. Treating the river basin district as the organizing unit for water management addresses environmental externalities since upstream states or localities have to consider the effects of their actions downstream. Organizing water management around the river basin district ensures that a watercourse will not be treated in a piecemeal fashion but in a holistic manner as nature, presumably, intended it to be treated. If the river basin district is used to organize the administrative sector of water management, states will have to put aside traditional administrative boundaries and to deal with water management within the hydrological borders of a river basin district. This is a radical idea, in a world where state sovereignty still enjoys primacy, in that it means that states need to cooperate with other states to manage waters in a fashion that makes national frontiers inappreciable. The river, thus, is treated as an entity the aggregate potential uses and values of which are negotiated among states and various costs/benefits are calculated through inter-state co-decisionmaking institutional mechanisms.

The new hydrographic borders prescribed for integrated water management have yet to be pursued on an international scale. International commissions have been established in many regions but few of them deal with all components of integrated water resources management. Domestic paradigms of integrated water resources management are not that plentiful either, although some countries have tried to implement components of integrated water resources management.[1]

The Water Framework Directive is the first attempt to apply the concept of integrated water resources management within each member state of the European Union and across state borders as well. The EU, as many have said, is a *sui generis* institution — not yet a federal state and not quite an international organization either. Because of its bifurcated nature, the EU could offer valuable lessons for regions that wish to pursuit a deeper level of cooperation in water management when the attributes of complete regional unity are still not quite that fathomable. The application of the integrated water resources management in Europe is happening through a mixture of internationalism and customized federalism, a model, that, if it succeeds, components of which could find application in other areas of the world.

Principles of integrated water resources management included in the WFD encompass:
--the river basin district as the organizing unit of water management;
--River Basin Management Plans (RBMPs) as tools for water management; and
--participation of public and stakeholders in water management planning.

These three basic tenets could be boiled down to one principle — that of river basin planning with public participation. Other principles that could be considered the driving principles of the directive are the cost-recovery principle and the goal of achieving good status for all waters. The reason river basin district planning is considered the fundamental principle of WFD implementation is that it epitomizes the system around which the directive revolves. Without this organizing principle the directive would be simply another directive in the line of directives aimed at the pursuit of environmental quality. It is this organizing principle that mandates the restructuring of water sector and the revamping of international water commissions, which have as a goal the pursuit of water quality in Europe.

The conference proceedings examine the institutional dimensions of water management as they are evolving for the application of the WFD. The vigor of institutions put in place both domestically and internationally will determine whether the principle of integrated water resources management will be applied in Europe. The institutions that are entrusted with the implementation of the directive at the domestic level (ministries, regions, river basin directorates, municipalities) and at the international level (multilateral and bilateral commissions), the level of coordination between the domestic level and the international level as well as horizontally across the various institutional components of domestic and international implementation determine the extent of application of integrated water resources management. The vigilance of the EU over this process through the coordination of institutions at the EU level could provide further organizing guidance for the implementation of the directive.

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[1] For the implementation of the concept of integrated water resources management on a global scale, see Elli Louka, International Environmental Law: Fairness, Effectiveness and World Order 169 (2006).

The conference proceedings are divided into three parts. The first part provides an overview of national experiences of the WFD implementation. The second segment offers insights on the transnational implementation of the directive through the international commissions that are becoming the platforms of the WFD implementation. The third section addresses the challenges presented by the participation of stakeholders and the public in water management.

The effect of the WFD on the administrative systems of member states is evident in all the presentations devoted to the national experiences of the WFD implementation. Pavel Punčochář analyzes the system of implementation that has been put in place in the Czech Republic. The Czech Republic is fortunate in that it had an organized system for water planning based on the hydrographic reality before the adoption of the WFD. Since 1965, the water sector has been organized based on hydrographic borders through the establishment of river boards. One can detect, thus, a high level of institutional fit between the WFD and the water sector of the Czech Republic. Having said that, the Czech Republic had to adopt a law to transpose the directive and to effectuate administrative changes that have to do with the absorption not only of the letter but also of the spirit of the directive. One such change involved the development of co-competence of key ministries involved in water management: the ministry of agriculture and the ministry of environment. Other changes had to do with inter-weaving the regions, a relatively new administrative structure, into the decisionmaking that has do with the adoption of the river basin management plans, as such plans are developed, primarily, by the river boards but have to be approved by the regions. Other changes have to do with the establishment of steering committees, coordination groups and working groups that have to operate at the national and sub-national levels to allow for swift implementation. A further innovative component involves the integration of flood management plans into the river basin management plans. Punčochář provides an engaging picture of the developments that have been necessary in the Czech Republic due to the application of the WFD and how these developments are intertwined to produce a system for the implementation of the WFD.

Gyula Holló goes to the heart of the issue of implementation as coordination was one of the first priorities of the Hungarian government in the aftermath of the adoption of the WFD. Such coordination was established immediately in Hungary at the inter-ministerial level and at the intra-ministerial level (through the cooperation of the various departments of the Ministry of Environment and Water). Holló analyzes in detail the coordination structure that has been put in place for the implementation of the WFD in Hungary. Hungary has a long tradition in water management at the catchment level and water directorates and inspectorates have been established at that level. The implementation of the WFD has further required the recognition of river basin districts and working areas (sub-districts) that facilitate the planning process. Hungary, as Holló clearly demonstrates, has recognized the Danube River basin district as the organizing unit of water management. Holló emphasizes the antinomy of pressures placed on the public sector. A lot is expected today of the public sector in terms of resources and expertise for the implementation of the EU legislation. On the other hand, there are constant calls to downsize that sector. It is unclear how the mentality of 'doing more with less,' according to Holló, could assist in our addressing future environmental challenges.

The implementation of the WFD has affected water management in Slovakia as Elena Fatulová demonstrates. This is because of the new responsibilities that have to be handed down to regional environmental authorities, the restructured role that entrenched public entities have to assume and the new function of the ministry of environment as the central competent authority for the implementation of the WFD. Fatulová analyzes the overall EU structure and how the domestic reorganized water structure fits within this overarching EU structure. The further regional and local organization of water management, although carefully prescribed for, has yet to fully envelop. Fatulová forthrightly recognizes that further efforts need to be undertaken to decentralize water management and involve the public in such management.

Lubka Katchakova and Vladimir Dontchev analyze the efforts of Bulgaria to implement the WFD. Bulgaria was an accession country at the time of the conference and had already engaged in efforts to implement the WFD. Bulgaria boldly decided to endorse the river basin principle and to establish river basin districts managed by river basin directorates under the authority of the ministry of environment and water. This, in combination with the new water act that was adopted in 2006, places Bulgaria, as Katchakova and Dontchev expound, in the forefront of efforts of implementation of the WFD. Given the number of directives that have been issued on water management, many of which require investment in infrastructure development, further resources will be necessary for the appropriate implementation of the EU legislation in Bulgaria.

Ioannis Sibetheros welcomes the challenge of the WFD implementation for Greece. The directive and the changes it makes mandatory for the public sector could, according to Sibetheros, lead to the development of a public authority that could become a paradigm for the functioning of public sector in Greece. This is the newly founded central water agency within the ministry of environment and public works that is to direct water management, at least initially — till the regional water directorates are able to undertake water management. Sibetheros emphasizes some of the intricacies of implementation and the potential role of veto players in a country where water management is basically 'irrigation water management.' A fragmented administrative structure and a lack of consensual culture create further potential challenges. Sibetheros remains optimistic that these challenges present also opportunities that could be the harbinger of change in Greece.

Aurora Vasiu delves into the principles that govern water management in Romania that include water management at the river basin district level, the integration of water quality and quantity and the cultivation of river basin solidarity. Water management in Romania, as Vasiu extensively analyzes, is administrated by the National Administration "Apele Romane" and its eleven directorates. Vasiu examines in detail the steps that have been undertaken in Romania for the WFD implementation including the public participation processes that have been established as each river basin directorate has in place a river basin committee comprised of government authorities and non-governmental organizations. Furthermore, Vasiu explains that the main stakeholders in water management have been identified according to the categories of stakeholders designated by the International Commission for the Protection of the Danube River underlining, thus, the importance of coordination between the national and the international level.

Helena Matoz provides a thorough picture of the WFD implementation in Slovenia — from the organization of the ministry of environment and spatial planning and the environmental agency to the expert groups that have been established to deal with specific matters of the WFD implementation. Most of the coordination in water management falls within the hands of the water director who heads the waters department of the ministry of environment and spatial planning. Despite a well-thought out system of water management, the issues and tasks of the WFD implementation are complex, as Matoz recognizes, and further organization is needed for their execution.

The second part of the conference proceedings addresses the international dimensions of the WFD implementation focusing on the development of international river basin districts and authorities. Philip Weller's presentation traces the efforts for the establishment of International Commission for the Protection of the Danube River (ICPDR). In his analysis of the commission, as it has evolved into a platform of coordination for the WFD implementation, Weller underlines something that often escapes international policymakers when dealing with international institutions. International institutions often appear to be entities all in themselves. Weller looks behind the international institutional structure to buttress the role of state parties in the making and evolution of international treaties. The will of the parties, Weller clarifies, determines the future of international organizations, such as international commissions. It is true that states play a central role in deciding whether international institutions will survive or perish. In the case of the ICPDR, Weller concludes, states have demonstrated a strong will which ensures a future role for the ICPDR in the management of waters of the Danube River.

Arnould Lefébure provides an account of the evolution of the WFD through the lenses of international institution making and the emergence of 'new countries,' —the international river basin districts defined by hydrological borders. The map of the international district of the Scheldt provides a vision of that district without the national frontiers that divide it (see Figure 12). Lefébure points out the challenges that the WFD presents for international institutional development. He describes the cyclical/iterative fashion of the workings of the International Scheldt Commission and how parties, through their interaction with each other, modify positions and counter-positions and influence the workings of other state parties and those of the international commission. Lefébure admits that international cooperation for the application of the WFD slows down national implementation. As he concludes, however, the added value of international cooperation, through the building of economies of scale for the sound management of water resources, far outweighs any perceived disadvantages of such cooperation.

Željko Ostojić addresses the development of the International Commission for the Sava River Basin, the youngest of the international commissions presented at the conference.

The Sava agreement that established the commission was the first international agreement signed in the beleaguered region comprised of Bosnia & Herzegovina, Croatia, Slovenia, Serbia and Montenegro. Because navigation infrastructure was dilapidated during the war, one of the primary functions of the commission is to advance navigation. Another goal of the commission is to pursue sustainable development and to prepare a river basin management plan for the Sava River basin. Ostojić presents in detail the problems that the new Sava Commission is facing in terms of restoring some of the ecology of the river and the need for financial support to ensure that the commission fulfills its functions.

The future of multilateralism and bilateralism is addressed extensively in Kálmán Papp's contribution. Papp begins with the historical evolution of the regime that encompasses the Tisza River basin and elaborates on the evolution of the regime — from a regime based on bilateralism to a regime based on parallel bilateral and multilateral arrangements. Papp addresses the question of the future of bilateralism in a region governed by a number of multilateral agreements. He notes that bilateral and multilateral developments could be well coordinated but also could compete with each other. Papp explores innovative means through which bilateral obligations could be weaved into the functions of the working groups that focus on the implementation of the WFD. He explores the possibilities of having neighboring water directorates collaborate with each other potentially establishing a transboundary directorate. One of the intriguing propositions in Papp's paper is that departments of neighboring directorates could cooperate with each other using some of the current electronic means of communication. Cooperating transnational directorates should stay abreast of the work of bilateral transnational commissions and those who head these directorates could assume leadership roles in bilateral commissions. Papp's paper offers multiple insights on the future of what has been called 'transnational governance' — the forging of communication networks among sub-state actors on the international scale.

Willem Mak provides a thorough overview of the coordination system that has been put in place for water management in the Netherlands. Netherlands provides an exemplar of a country that wishes to adopt the river basin principle established by the WFD but does not simultaneously espouse the idea of development of new institutions devoted to river basin management. Mak provides lucid diagrams (see Figures 14, 16, 17) of the institutional organization in the Netherlands that are useful in understanding, at least schematically, how coordination in the Netherlands is executed. Coordination in the Netherlands does not involve only coordination at the national level but also coordination in the four international river basin districts and at the sub-national level. Mak expounds on the parallel multi-level decisionmaking process that is to be applied in the 2008 and 2009 timeframe in the Netherlands. Mak further discusses the blueprint of international coordination put in place by the International Commission for the Protection of the Rhine. One of the lessons learnt from the involvement in that commission is the pursuit of consistency of national approaches to produce comparable results. Mak argues, in that vein, that the pursuit of complete harmonization of methodologies and results among state parties is probably an elusive goal for international commissions. Mak recommends that additional attention must be placed on the upstream-downstream relationships early in the cooperation process.

The public participation section of the conference opened with a paper prepared by Gerhard Skoff, president of the Danube Tourist Commission. Skoff underlines the importance of the Danube as a river that connects culturally, politically and emotionally a whole region. Skoff's contribution is animated by a deep concern about the conservation of the 'blue Danube' in combination with the desire to further tourism as a source of growth in the region. Tourism is an economic sector for which the protection of environment and the pursuit of growth cannot be viewed as diametrically opposed goals; they have to be integrated, instead, for tourism to operate in a viable and profitable manner. Tourists embark for the destinations to experience environments where nature and culture have achieved a successful co-habitation. Skoff concludes his presentation underlining the importance of establishing monitoring and warning systems to ensure the water quality of the Danube River.

Jasmine Bachmann analyzes the participation of the public and stakeholders in the workings of the International Commission for the Protection of the Danube River (ICPDR). As Bachmann demonstrates, the commission has engaged in efforts to attract a variety of stakeholders to participate in its activities. From granting observer status to various non-government organizations to organizing the Danube stakeholder conference, the ICPDR has made strides since its inception in involving various stakeholders in its deliberations. The participation of the general public, as Bachmann clarifies, has not left the ICPDR indifferent either. The organization of the Danube Day every summer attracts a high number of participations from all the co-riparian countries and plays an important role in bolstering the spirit of cohesion in the region.

Maria Ghini elaborates on public participation in river basin management in Greece and on the problems encountered in states that do not have extensive experience with public participation mechanisms. Ghini analyzes the consultation process that takes place as the RBMPs are being prepared by the four consortia in which the preparation of such plans has been entrusted. The ministry of development has organized workshops in the different regions, which are to be affected by the elaboration of the river basin management plans, as a form of consultation, inviting, thus, the inputs of the public and stakeholders in the further development of RBMPs. Ghini concludes that the results of the consultation process have not been that encouraging. People are eager to share their views during workshops but there is as a paucity of written feedback. Written feedback is important, as it will help structure the consultation process. Ghini postulates that the tepid public response has probably to do with the fact that the public has not been very informed about the WFD implementation process and the benefits that could be derived from participating in such a process for the various water user communities. As Ghini concludes, public participation is a process and authorities and the public need to learn from each other all through the process.

Petur Farkas analyzes the partial river basin management plan prepared for the Hornad/Hernád River shared between Slovakia and Hungary. What is interesting about this partial RBMP is that is being developed by non-governmental organizations with the aim to present such plan to the co-riparian governments. Farkas, who has been personally involved in the preparation of the plan, points out the difficulties that are encountered typically in many river basins when a river basin management plan is to be prepared. The lack of data and the lack of comparability of data can stall the development of river basin management plans. A project executed at the non-governmental level has to deal with the additional difficulty of attracting the attention governments and of generating public awareness. Some of the conclusions from the execution of the project have to do with the realization that not all aspects of the WFD implementation can be completely harmonized. Often those who are involved in transnational river basin management would be better off trying to create a sort of coherence from the data that already exist rather than postponing the achievement of concrete goals for the future.

Rob Uijterlinde analyzes the evolving role of waterboards in water management in the Netherlands. Evolving since the thirteen century, waterboards could be viewed as some of the oldest stakeholder-based water management institutions in Europe. While waterboards started as associations of landowners today they are government institutions that function through stakeholder participation. Residents, business, farmers and real estate owners of a waterboard district can vote in waterboard elections. Uijterlinde explains that waterboards are based on the triplet 'interest-pay-say' which means that those who have an interest in the work of waterboards have to pay taxes/fees in order to have a say in the decisionmaking of waterboards. Uijterlinde underlines that while waterboards offer a viable model for water management, especially because of their financial autonomy and democratic organization, a lot still could be learned from the experience of other countries that have experimented with river basin management. Uijterlinde alludes to some of the difficulties involved in coordinating water management in the era of WFD implementation, as it is difficult to bring along institutions for which water management is the periphery of their concerns.

Within the context of the WFD, farmers have been viewed as the culprits of pollution whose behavior has to be modified to achieve the environmental results prescribed for by the WFD. Leticia Hernando, who represented the European Landowners' Association (ELO) at the conference, contests this view. One of goals of the ELO, as Hernando explains, is to promote private entrepreneurship in order to achieve socio-economic development and environmental sustainability in European rural areas. As Hernando expounds, it is important to perceive landowners not solely as water users but as co-managers or even suppliers of water resources. Because the ELO views landowners as co-managers of water resources, the ELO's priorities include the design of win-win circumstances where the protection of the environment and sound land use practices coincide. The ELO tries to identify methods through which the Common Agricultural Policy (CAP) and the Rural Development Programs can be used to achieve the objectives of the WFD.

Dan Bond analyzes the Ribble pilot that took place in the Ribble catchment located in the United Kingdom. Pilot projects are part of the EU implementation strategy and are used to test the applicability of various components of the WFD. The potential of public participation as a strategy in the preparation of river basin management plans was tested at the Ribble catchment. As Bond explains various modes of public participation were tested at the Ribble, one of the most successful of which was the stakeholder forum. The stakeholder forum was carefully designed by the Environment Agency to include a variety of stakeholders who will be actively involved in the preparation of catchment plans. Because of the experience with the Ribble pilot, stakeholder fora are now encouraged as a mode of public participation at the catchment level. At the river basin district level, more formal liaison panels will be developed comprised of government authorities and stakeholder interests. Bond emphasizes that authorities must be selective about which stakeholders they involve, in which process of the WFD implementation so as to avoid stakeholder fatigue. Stakeholders generally do not appreciate being involved in proceedings in which they cannot contribute much or in which they are unlikely to receive feedback on their ideas and actions.

The papers presented at the conference offer diverse perspectives on the implementation of the WFD from professionals who are intimately involved in its implementation. The presentations offer valuable insights into the national and transnational aspects of implementation and the institutional development that has been made necessary due to the exigencies of EU legislation. The implementation of the WFD in Europe could provide fresh ideas on the development of coordinating infrastructures, participative decisionmaking and methods for forging trans-governmental networks in other regions of the world.

The Institutional Framework for the Implementation of the Water Framework Directive in the Czech Republic

Pavel Punčochář,

1. Overview

The implementation of Water Framework Directive (WFD) in the Czech Republic has benefited from a system of water management that was already in place before the adoption of the directive. The River Boards that are state enterprises (established and functioning since 1965) are the main responsible bodies for water resources management in the hydrological watersheds. Furthermore, planning for water management was introduced in the 1940s. The first national plan was adopted in 1953 and the second national plan, that introduced central planning, was adopted in 1974. Today eight sub-watersheds (representing "districts" according to the WFD) have been determined. Moreover, a plan for the three main river basins, setting the frame of activities in these river basins, is under preparation.

The main responsible bodies for the implementation of the WFD are the Ministry of the Environment (overall process and reporting) and the Ministry of Agriculture (planning and management of water resources). Other ministries that are involved in specific aspects of water management include: the Ministry of Health, the Ministry of Transport and the Ministry of Defense. The management and operation of watercourses has been assigned to river boards (state enterprises), the Agricultural Water Management Authority, the Forests of the Czech Republic and the municipalities, national parks and private persons. The Agricultural Water Management Authority manages 35 400 km of watercourses including 12 000 km of canals. The Forests of Czech Republic are state enterprises and regulate about 19 600 km of watercourses. The River Boards are state enterprises and deal with 17 500 km of watercourses. Municipalities, national parks, private persons and other miscellaneous entities manage about five percent of the total length of watercourses.

The Ministry of Agriculture and the Ministry of Environment, the institutions directly responsible for the WFD implementation, execute these responsibilities within the framework of shared competencies introduced in recent water legislation. Institutions have been established for elaboration and coordination of the river basin management plans: the steering working group, the coordination group and eight working groups. The Czech river basin management plans will contain, in addition to the requirements set by the WFD, sections on flood protection and on the development of assets of water supply and of the sewage system. The activities executed in the Czech Republic are in accordance with what is envisioned in the WFD. The implementation of the WFD is taking place in accordance with the timetable established by the European Commission.

2. Transposition and Implementation

New water legislation has been adopted in the early 2000s that fully transposed the "*acquis communautaire*" including the WFD.

The most important legislative act is the Water Act (Act. No. 254/2001 Col.) and its latest amendment (Act No. 20/2004 Col.). The more detailed conditions of implementation are included in the secondary legislation (for instance, decrees No. 292/2002 Col., and No. 142/2005 Col., on river basin districts and water planning, respectively). The Ministry of Agriculture, to bolster awareness of existing legislation, has issued relevant handbooks for use by various administrative authorities.

As mentioned above, the process of the WFD implementation is benefiting from the rich tradition of river basin management. River boards are managing and operating water resources in designated watersheds and executing water management planning.

The competent authorities at the national level are the Ministry of the Environment and the Ministry of Agriculture. The cooperation between the two ministries is mandated by the Water Act that has established a model of shared competencies of central water authorities. At the regional level, the competent authorities are the thirteen regional departments of state administration and the Council of the Capital Prague. At the district level, there are 216 authorities that realize the state policy in 6 272 municipalities. The report of the Czech Republic on the administrative organization for the WFD implementation was delivered to the European Commission in June 2004 in accordance with the WFD timetable.

River basin administrators (river boards) in cooperation with regional authorities of state administration are responsible for the preparation of River Basin Management Plans (RBMPs). The relevant regions, through the regional governing bodies, are the authorities that have the competence to approve the river basin management plans. The territory of the Czech Republic is traditionally divided into three main river basins draining into three seas. These basins have been divided into eight sub-watersheds (representing "districts" according to the WFD) for which the river basin management plans will be elaborated.

Three bodies are responsible for coordination of river basin planning. These bodies have been established by the Ministry of Agriculture in cooperation with the Ministry of the Environment. These bodies include:

- A steering working group (consisting of ten representatives of the main competent institutions);
- A committee for planning in water (composed of fifty representatives of all bodies involved in RBMP elaboration – including NGOs);
- Eight working groups on elaboration of water plans for designated sub-watersheds (districts), which are led by the representatives of river boards, state enterprises.

In addition, the plan for the main river basins is under preparation. This plan will provide the framework for the plans in sub-watersheds and will put together an integrated conception of water management policy in the Czech Republic. An important component of the plan is a list of localities that are suitable for storage of "potential water resources." Storing water in reservoirs could act as a preventive device of possible negative consequences of climate changes during the next decades. Developing storage facilities for water obviously limits the future potential for local development infrastructure (industry, highways, railroads). Because of the limits placed on development, municipalities that are affected by reservoir planning are not that enthusiastic. Thus, a large debate has opened on the number of localities and the extent to which some localities would be affected because of the infrastructure needed for water storage. Environmental NGOs and some municipalities are against the planning of any artificial reservoirs and dams. The common interest is at stake and it is taken into consideration in the discussions. Priority should be given to considerations regarding future generations that would have to address climate change in terms of real needs. Therefore, the protection localities should be pursued so as to eliminate the negative consequences of possible climate change. The plan for the main river basins will be submitted for approval to the government by December 22nd, 2006. Furthermore, reporting duties under the WFD — for instance, the "characterization of catchment areas"— were finalized in accordance with the WFD timetable and were sent to the European Commission by March 22nd, 2005.

The T.G.Masaryk Water Research Institute has undertaken the task of designation of water bodies. Overall 1103 surface water bodies have been identified (1028 flowing water bodies and 75 standing water bodies). With regard to groundwater, 161 water bodies have been identified. Furthermore, three water bodies have been designated as "artificial." Taking into account the impacts of human activity, 628 surface water bodies and 30 groundwater bodies have been identified as "high risk." Some 460 water bodies have been identified as "uncertain" from the point of view of attaining water quality standards by 2015. The preliminary designation of "heavily modified water bodies" indicates that about 60 percent of water bodies might have this status. A more detailed assessment of heavily modified waters is now under preparation.

In order to execute the economic analysis of water use, the "Basic Scenario for Development in the Field of Water up to 2015" was elaborated. The first evaluation of the return on investment for water management services has been executed for about 51 percent of water resources and about 96 percent of water supply and sewage system. A further development of the economic analysis is taking place as a consequence of a guidance issued by the European Commission and its working group.

The Czech Republic is located in central Europe on the water divide of three seas – the North Sea, the Baltic Sea and the Black Sea. Practically all watercourses of the Czech Republic cross also the neighboring countries. For this reason, international cooperation in water management and the WFD implementation have acquired increasing importance. Bilateral commissions for transboundary waters with all neighboring countries have been established. These commissions are very important for the WFD implementation and the elaboration of water management plans in transboundary watersheds.

In addition, since 1990 the Czech Republic is a contracting party to the convention that has established the international Commission for Protection of the Elbe River. Since 1994, the Czech Republic is a party to the Convention for the Protection of the Danube River. Furthermore, the Czech Republic is a party, since 1996, to the Convention that has established an International Commission for the Protection of the Oder River. These commissions contribute significantly not only to the protection of watercourses but also to the protection of respective seas. International commissions have acquired essential importance in the preparation of the integrated river basin management plans for transboundary river basins.

The river basin management plans required by the WFD, which have to focus on the protection of water ecosystems, will contain also planning measures for flood protection and measures for the development of assets for water supply and sewage systems. Flood protection programs have been developed since 2002 in order to implement the Strategy for the Protection against Floods that was adopted in 2000. An update of the Flood Protection Strategy is now under preparation. This new update will be reflective of the experience with floods that occurred both in 2002 and in 2006 and would be in accordance with the Flood Directive that is currently under discussion at the European Union. As a consequence of their inclusion of flood protection measures, the RBMPs will be even more complex than what is required by the WFD.

Other activities are focused on the introduction of the appropriate monitoring network according to the WFD, which will be developed on the basis of a decree prepared by the Ministry of Environment in cooperation with Ministry of Agriculture.

The details and continuously updated information on the Czech water legislation and planning both for the state administration and the general public are available on the Internet at www.mze.cz and www.voda.mze.cz

Institutional Mechanisms for Water Management in Hungary

Gyula Holló

1. Introduction

Hungary is located at the heart of the Danube River. Hungary is situated within the drainage basin of the Danube River at the lowest part of the Carpathian Basin. The flood plains cover close to a quarter of the country's territory and affect more than two million inhabitants in more than seven hundred settlements. Overall about 95 percent of the surface water resources originate abroad while there is an abundance of groundwater resources. There are thick alluvial deposits in major parts of the country and karst aquifers in the mountainous regions.

Because of this specific hydrological situation water is an important issue in Hungary. Water management in Hungary has a rich tradition and the first efforts to regulate water management date as early as in the 19th century and are found in article XVII of the 1885 Act. Further water legislation was adopted in the 1960s and an updated Water Act became effective in 1995. The act defines the responsibilities of actors that are involved in water management such as the state, municipalities and various sectors of the economy.

2. Institutional Mechanisms

Today water management in Hungary is a shared responsibility of the various ministries. The Prime Minister's Office deals with catastrophic events including extreme floods. The Ministry of Environment and Water (MoEW) is responsible for water management including the protection of soil and water. Other ministries, for example, the Ministry of Interior is responsible for the operation of targeted state subsidies for the water infrastructure investments of local municipalities. The table below includes all the ministries having some kind of responsibility in water management in Hungary.

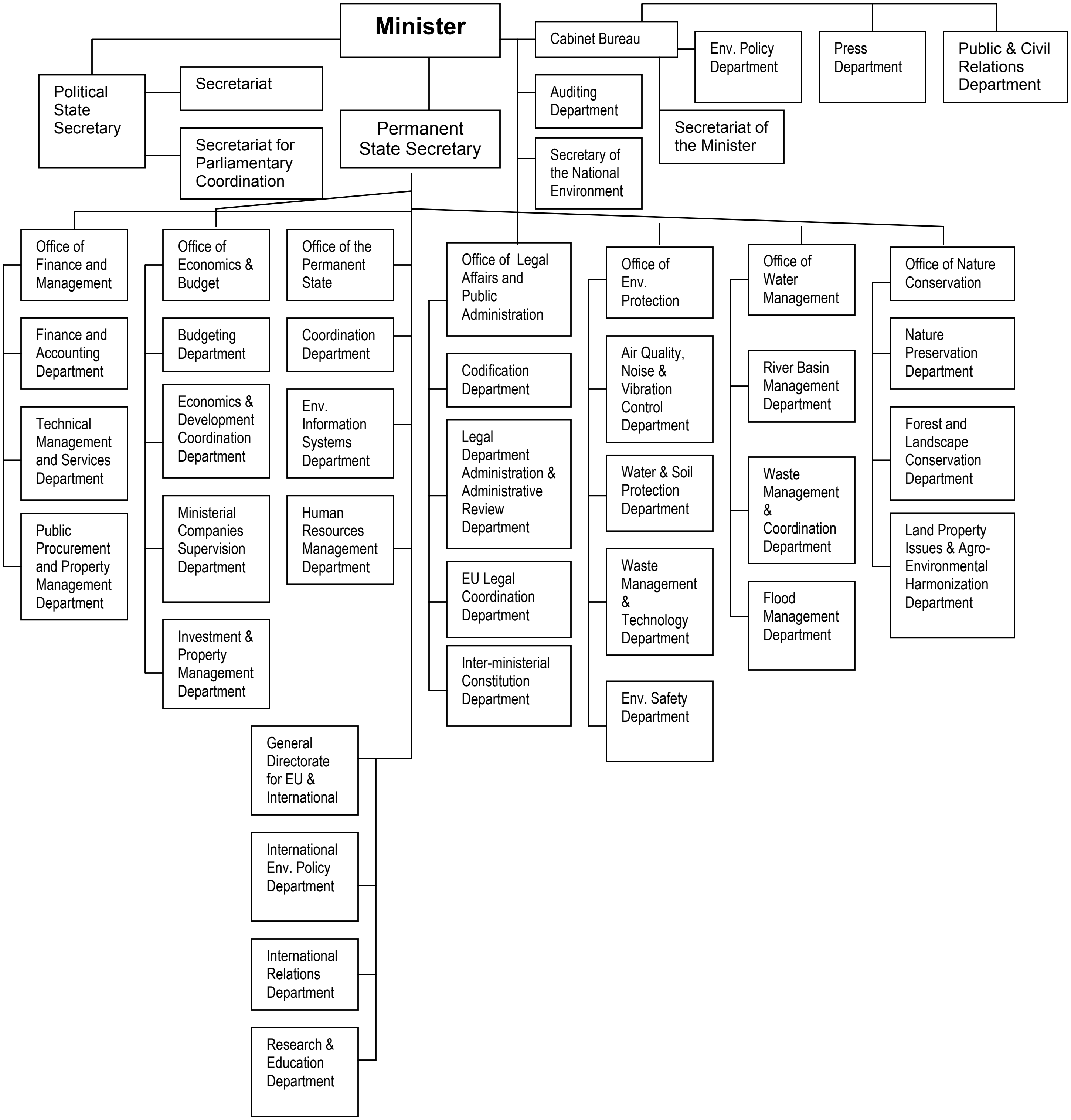
Table 1. Shared Responsibilities in Water Management (Hungary)

Prime Minister’s Office
Ministry of Environment and Water
Ministry of Interior
Ministry of Health, Social Affairs and Family
Ministry of Agriculture and Regional Development
Ministry of Economic Affairs and Transport
Ministry of Defense
Ministry of Children, Youth and Sports Affairs
Ministry of Justice
Ministry of Foreign Affairs
Ministry of National Cultural Heritage
Ministry of Education
Ministry of Finance
Ministry of Information Technology and Telecommunications
National Office of Statistics

The Water Framework Directive came into force on December 20, 2000 and very soon after that the Hungarian government adopted a decision to set up an Inter-ministerial Committee for the implementation of the directive. This committee is chaired by the deputy state secretary of the Ministry of Environment and Water and is comprised of representatives of other related ministries. Various NGOs and other associations (such as the Association of Waterworks) also participate as observers. The Inter-ministerial Committee meets three to four times per year and its main focus is to allocate the tasks and responsibilities that come with the implementation of the WFD.

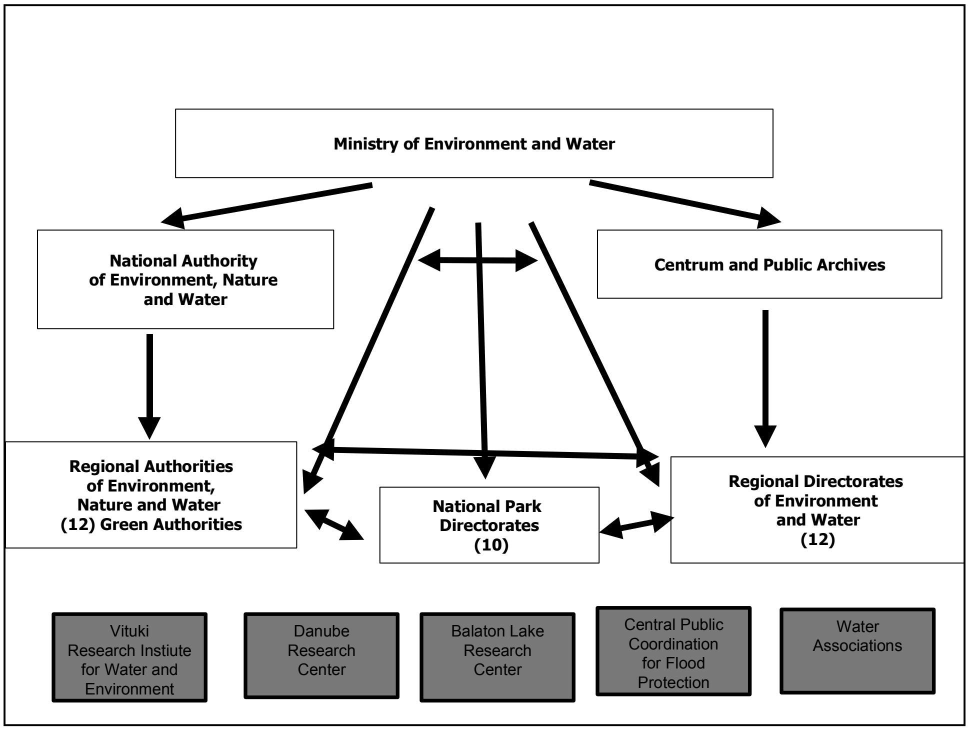
Water management is one of the technical responsibilities of the Ministry of Environment and Water. There are three offices within the Ministry of Environment and Water dealing with water, such as the Water Office, the Environment Office, and the Nature Conservation Office. Representatives of these three offices meet weekly as a Horizontal Working Group to discuss issues that pertain to the implementation of the WFD. Figure 1 below provides the structure of the Ministry for Environment and Water.

Figure 1: Organization of Ministry of Environment and Water (Hungary)


Minister
Cabinet Bureau
Env. Policy Department
Press Department
Public & Civil Relations Department
Political State Secretary
Secretariat
Secretariat for Parliamentary Coordination
Permanent State Secretary
Auditing Department
Secretary of the National Environment
Secretariat of the Minister
Office of Finance and Management
Finance and Accounting Department
Technical Management and Services Department
Public Procurement and Property Management Department
Office of Economics & Budget
Budgeting Department
Economics & Development Coordination Department
Ministerial Companies Supervision Department
Investment & Property Management Department
Office of the Permanent State
Coordination Department
Env. Information Systems Department
Human Resources Management Department
Office of Legal Affairs and Public Administration
Codification Department
Legal Department Administration & Administrative Review Department
EU Legal Coordination Department
Inter-ministerial Constitution Department
Office of Env. Protection
Air Quality, Noise & Vibration Control Department
Water & Soil Protection Department
Waste Management & Technology Department
Env. Safety Department
Office of Water Management
River Basin Management Department
Waste Management & Coordination Department
Flood Management Department
Office of Nature Conservation
Nature Preservation Department
Forest and Landscape Conservation Department
Land Property Issues & Agro-Environmental Harmonization Department
General Directorate for EU & International
International Env. Policy Department
International Relations Department
Research & Education Department

The administrative organization for water management centers on the Ministry of Environment and Water that is the institution primarily in charge with the implementation of the WFD. Under the Ministry of Environment the Water, the Center and Public Archives deals with the control and supervision of the twelve Regional Directorates of Environment and Water. The National Inspectorate of Environment, Nature and Water supervises the legal work of the Regional Inspectorates of Environment, Nature Conservation and Water, the so-called twelve Green Authorities. Also under the Ministry of Environment and Water, there are ten National Park Directorates. Background support is provided by a number of institutions namely:
--the Vituki Research Institute for Water and Environment;
--the Danube Research Center;
--the Balaton Lake Research Center (the Balaton Lake is one of the most important water bodies in Hungary);
--the Central Public Service for Flood Protection (ÁBKSZ); and
--the Water Associations.

Figure 2: Organization of Water Management in Hungary


Ministry of Environment and Water
National Authority of Environment, Nature and Water
Centrum and Public Archives
Regional Authorities of Environment, Nature and Water (12) Green Authorities
National Park Directorates (10)
Regional Directorates of Environment and Water (12)
Vituki Research Instiute for Water and Environment
Danube Research Center
Balaton Lake Research Center
Central Public Coordination for Flood Protection
Water Associations

The twelve Environment and Water Directorates (EWDs) and the twelve Inspectorates are located in the same river basins. In terms of structure of water administration beyond the national level one needs to distinguish between the level of the European Union and the level of the Danube Basin. The legislation enacted by the European Union has to be transposed into national legislation. According to the provisions of the WFD, the entire Danube River Basin should be regarded as one administrative unit called river basin district. The International Commission for the Protection of Danube River is acting as the coordinating platform in the implementation of the WFD. With respect to the operational side at the national level, twelve EWD are responsible for the maintenance and operation of state owned river sections and lakes and drinking groundwater resources. The EWD are operating on sub-river basins. Within each sub-river basin there are river engineering divisions (river sections). Inspectors deal with water management at the level of river engineering division and control the work and operation of water guards who deal with local water management.

For the purposes of organization of the planning procedure for the development of RBMPs required by the WFD, four sub-river basins have been established namely Balaton, Drava, Danube and Tisza. In addition, these four sub-river basins are divided into seventeen planning units.

As mentioned above, public participation in river basin management at the national level is executed via the Inter-ministerial Committee that has been established for the implementation of the WFD. With regard to public participation at the regional level, and in order to fulfill the requirements of the open planning procedure, twelve Regional Water Boards have been established that are in essence fora for the discussion of river basin management issues. The Environment and Water Directorates provide secretariat function for these boards. Regional and local authorities, public services institutions, industry stakeholders, environmental NGOs and other interested parties are invited to participate in the regional water boards.

All interventions in water bodies by current and potential future users require a license. This license is issued by the competent regional authority (Regional Environment, Nature Conservation and Water Inspectorate) after consultation with other interested authorities (for instance public health authorities, municipalities or mining authorities). About ten to twelve thousand licenses are issued annually.

Drinking water and sewage services are supplied by five state-owned (regional) companies and about 365 companies owned by municipalities. About a hundred of these companies cover close to 95 percent of total water supply.

With regard to international cooperation in water management Hungary is involved in the following institutional arrangements:
--International Commission for the Protection of the Danube River;
--International Association for Danube Research;
--International Association of Waterworks in the Danube Basin (IAWD);
--Danube Commission for Navigation;

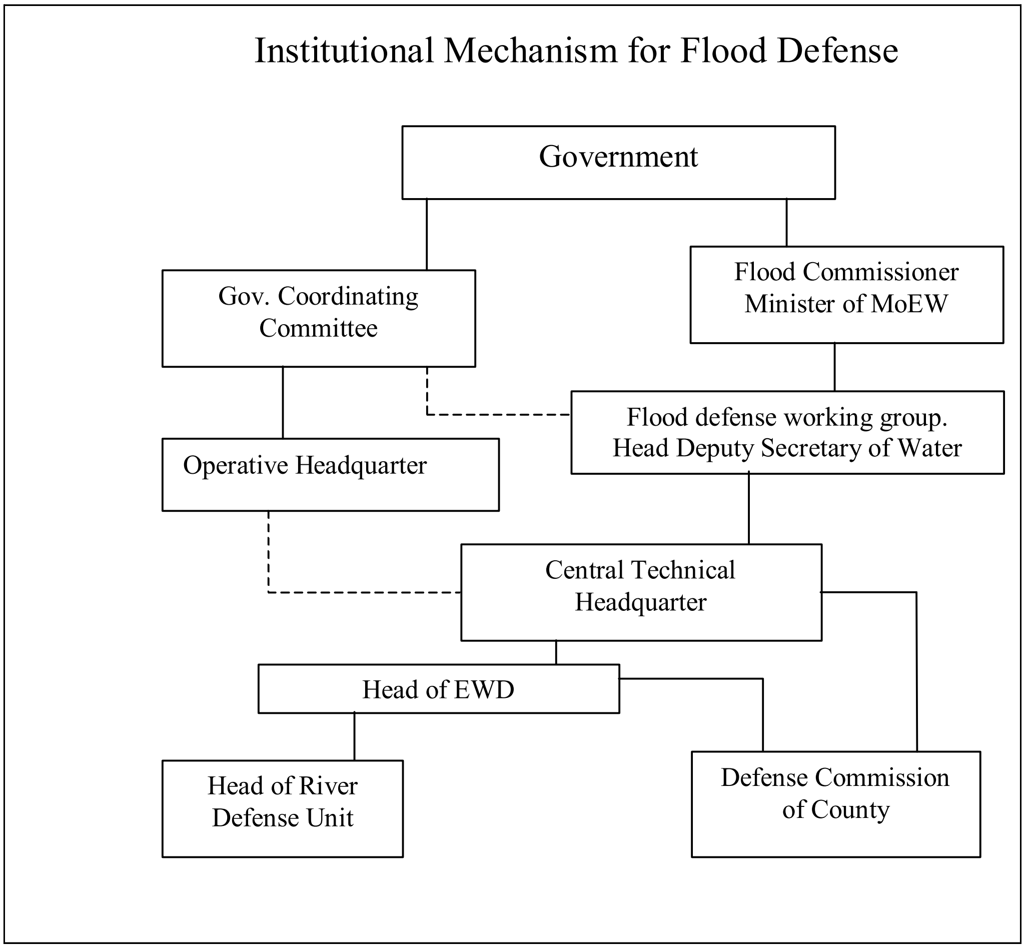
--Forum for Danubian Hydrological Services;
--International Hydrological Program of UNESCO—Regional Cooperation of the Danube countries.

At the national/bilateral level various transboundary water commissions have been established. There is also multilateral cooperation for the Tisza River, which is a tributary of the Danube River.

3. Institutional Mechanisms for Flood Protection

The institutional mechanisms for flood defense in Hungary are different from those that apply to "regular" water management and those that have been put in place for the implementation of the WFD. The government through a Government Coordinating Committee is in charge of flood management. The Chief Flood Commissioner is no other than the Minister of Environment and Water. On the technical level an Operative Headquarter has been established. There is a Flood Defense Working Group that is headed by the Deputy Secretary of Water. The Technical and Central Headquarter is under the supervision of the Flood Defense Working Group and the Operative Headquarter and, in turn, oversees work of the Environment and Water Directorate (EWD). At the county level, the Defense Committee of the County has decision making power with regard to evacuations. Local authorities obviously have an important role to play in case of flooding. Hungary has had unpleasant experiences with floods and the institutional mechanisms for flood defense are very important to the country.

Figure 3: Institutional Mechanisms for Flood Defense (Hungary)


Institutional Mechanism for Flood Defense
Government
Gov. Coordinating Committee
Flood Commissioner Minister of MoEW
Flood defense working group. Head Deputy Secretary of Water
Operative Headquarter
Central Technical Headquarter
Head of EWD
Head of River Defense Unit
Defense Commission of County

4. Conclusion

There are many challenges for future water management. Such challenges include the change in natural conditions, for instance, climate change and extreme weather events. Governments have to initiate responses to such events. A special issue for Hungary is the nearly permanent danger of floods. Whether it is possible to combine decisive government response in the case of flooding with demands for a smaller state and a lean administrative structure remains to be seen.

Furthermore, in the process of the implementation of the WFD, public participation has to be institutionalized in the near future in order to ensure the application of the open planning procedure.

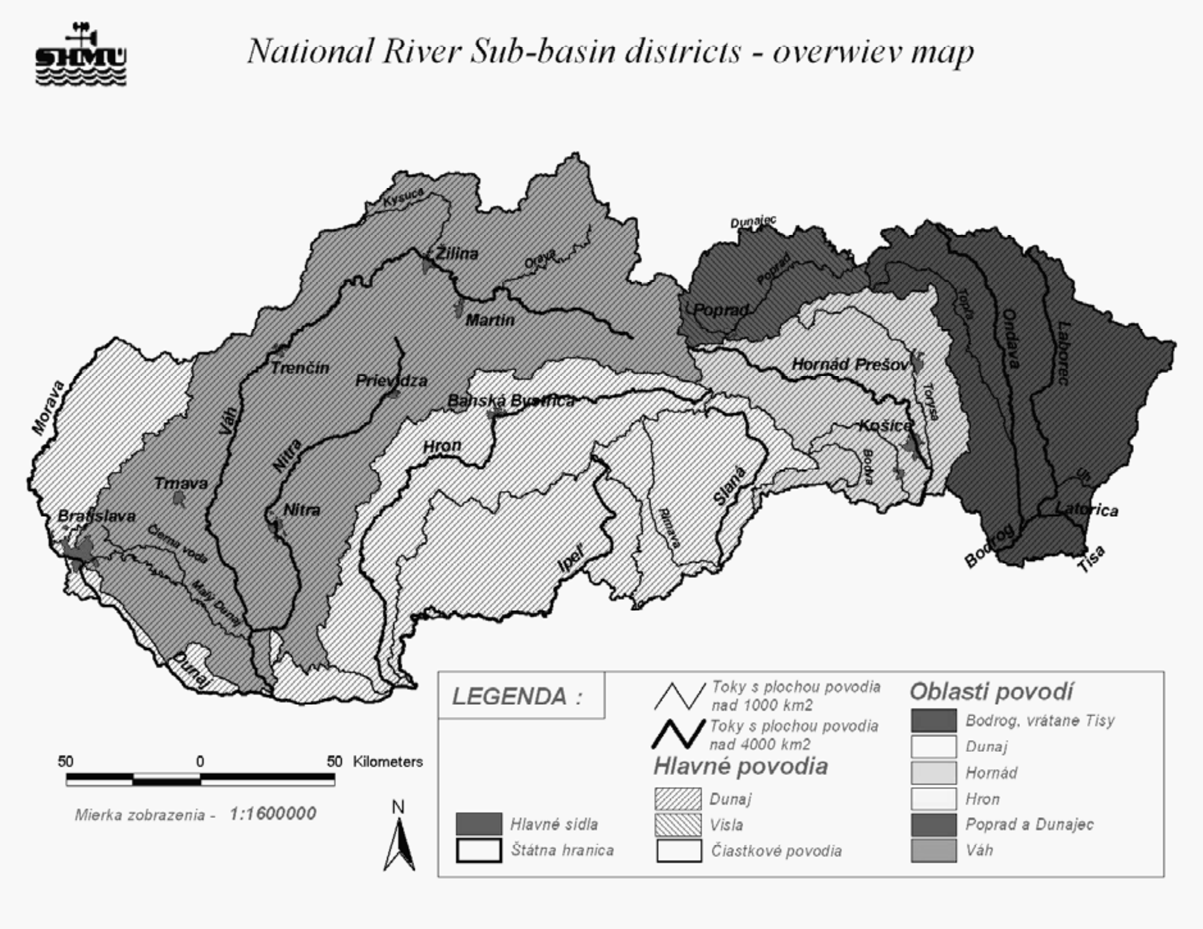
Institutional Framework for the Harmonization of the Water Framework Directive in Slovakia

Elena Fatulová

The Slovak Republic is a central European country covering an area of 49 034 km². The neighboring countries are Austria, the Czech Republic, Poland, Ukraine and Hungary. The total length of watercourses is 49 775 km. Overall 96 percent of waters are drained by the Danube River to the Black Sea. The remaining four percent of waters are drained by the Vistula River and its tributaries to the Baltic Sea.

The Slovak territory is divided into six national river basins of which five (Danube, Vah, Hron, Brodrog, Hornad) are part of the international Danube River basin. One river basin (that includes the Poprad and Dunajec tributaries) is part of the international Vistula River basin. The overview of the river basins and the territory they cover is shown in Figure 4.

Figure 4: Map of National and Sub-national River Basins (Slovakia)



1. Competent Authorities for the Implementation of the Water Framework Directive

The competent authorities for implementation of the Water Framework Directive (WFD) have been designated at two levels. At the national level, the Ministry of Environment (Moe) is the competent authority for the implementation of the Water Framework Directive. At the regional level, regional environmental authorities are responsible for the implementation of the directive.

National competent authority

The Ministry of Environment is the central administrative authority for the development and protection of the environment (air, water, nature). In the field of water the ministry is responsible for the execution of state water administration, water management, water protection and the rational use of water, including fishing (but excluding fish farms). The responsibilities of the Ministry of Environment are defined in the Water Act No. 364/2004, which came into force on July 1, 2004.

The Ministry of Environment is responsible mainly for the:

- Identification and designation of competent authorities and other institutions involved in the implementation process of the WFD and the assignment of responsibilities and duties to such authorities;
- Development of the river basin management plans for the whole territory of Slovakia and the six sub-basin districts including the related program of measures;
- Coordination of the national activities/tasks within the framework of international cooperation on the development of the Danube River basin plan and the Vistula River basin plan.

According to the provisions of water act, the ministry must ensure the implementation of tasks specified in the WFD. These tasks include the:

- Performance of analysis of river basin districts including characterization and identification of water bodies encompassing heavily modified and artificial water bodies, typology and determination of reference conditions, assessment of impacts of human activities on the status of surface water and groundwater, registration of protected areas and economic analysis of water use;
- Establishment of monitoring programs and assessment of surface and groundwater status as well as of protected areas.

The ministry performs its tasks in cooperation with other institutions that are under its direct supervision. Such institutions include the Hydrometeorological Institute, the Water Research Institute, the Water Management Enterprise, the Inspectorate for Environment, the Environmental Agency and the Nature Protection Authority.

The Hydrometeorological Institute is involved in monitoring, identification of water typology and reference conditions, identification of groundwater bodies and assessment of their status and in the development of public participation processes.

The Water Research Institute is concerned with the identification of surface water bodies and of heavily modified and artificial water bodies as well as with the registration of protected areas and the review of pressures and impacts of human activities.

The Water Management Enterprise oversees the river basin authorities responsible for water management within the sub-river basin districts. The Water Management Enterprise operates through its headquarters and six river basin branches. The Water Management Enterprise has undertaken the economic analysis of water and flood protection and executes some monitoring activities concentrating mostly on operational water quality monitoring.

The Inspectorate for Environment is a special control body under the authority of Ministry of Environment and basically supervises water protection. The Slovak Environmental Agency is responsible for reporting obligations to the European Union. The State Nature Protection Authority is occupied mainly with nature protection issues. For instance, it is involved in the registration of certain protected areas, the protection of wetlands, Natura 2000 activities and the monitoring of conservation areas.

Regional competent authorities
With regard to river basin sub-districts, the following regional competent authorities have been designated:

- Trnava Regional Environmental Authority – Danube River Basin District;
- Zilina Regional Environmental Authority – Vah River Basin District;
- Banska Bystrica Regional Environmental Authority – Hron River Basin District;
- Presov Regional Environmental Authority – Bodrog River Basin District and Poprad and Dunajec River Basin District; and
- Kosice Regional Environmental Authority – Hornad River Basin District.

The regional environmental authorities execute the state administration of water protection in the specific regional areas. The Ministry of Environment, since it is the national competent authority for the WFD implementation, regulates in a methodical fashion and supervises the activities of the regional environmental authorities. The ministry must ensure that the regional environmental authorities are fulfilling their duties relating to the enforcement of river basin management plans and the implementation of program of measures.

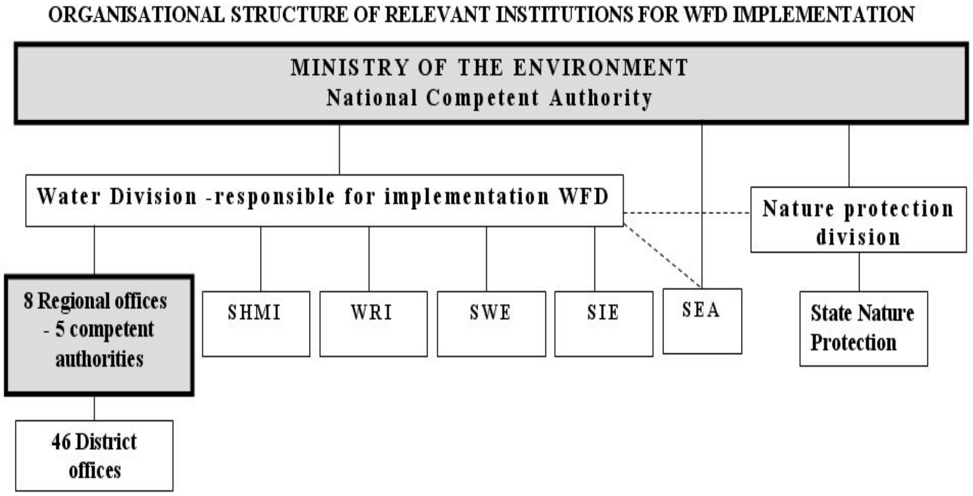
The regional competent authorities have multiple responsibilities with regard to the implementation process of the WFD. The regional competent authorities must:

- Issue sub-river basin management plans including programs of measures as legally binding instruments;
- Ensure public information and consultation;
- Coordinate the activities with regard to the enforcement of river basin management plans and programs of measures in order to achieve environmental objectives;
- Supervise the performance of programs of measures incorporated into river basin management plans.

The regional environmental authorities must execute their duties with regard to the implementation of the WFD in close cooperation with:
--the forty-six District Environmental Authorities,
--the river basin authority namely the Slovak Water Management Enterprise with its six branches that acts both at the national and district level; and
--the Slovak Inspectorate for Environment which is an entity specifically supervised by the Ministry of Environment.

One of the goals of regional environmental authorities is to provide methodical supervision and guidance to the district environmental authorities within their territory.
The organizational structure of the competent authorities and other institutions involved in the implementation process are presented in the following diagram (see Figure 5).

Figure 5: Organizational Structure of WFD Implementation in Slovakia


ORGANISATIONAL STRUCTURE OF RELEVANT INSTITUTIONS FOR WFD IMPLEMENTATION
MINISTRY OF THE ENVIRONMENT
National Competent Authority
Water Division -responsible for implementation WFD
Nature protection division
8 Regional offices - 5 competent authorities
SHMI
WRI
SWE
SIE
SEA
State Nature Protection
46 District offices

SHMÚ – Slovak Hydrometeorological Institute – monitoring, typology, reference conditions, groundwater bodies identification and assessment of status, public participation
WRI – Water Research Institute – surface water bodies identification, heavily modified and artifical water bodies identification, register of protected areas, review of pressures and impacts of human activities
SWE – Slovak water management enterprise (headquarter and 6 river basin branches - economic analyses, flood protection, some monitoring activities
SIE – Slovak Inspectorate for Environment – special control body used by the Moe for state supervision over water protection
SEA – Slovak Environmental Agency – reporting duties
State Nature Protection –execution of state administration of nature protection

2. Coordination of the Implementation Process

The implementation process of WFD is organized with the aim to:

- Involve all parties concerned in active cooperation in the development of river basin management plans at the national level and international level, concentrating specifically on the Danube River basin district;
- Achieve international cooperation and follow up on the process that has started at the EU level.

The Slovak Republic is a state party to the Convention on the Protection of the Danube River. Within framework of that convention, the International Commission for Protection of Danube River (ICPDR) has been established as a coordination body for the WFD implementation in the Danube River basin district. Bilateral coordination is secured through the commissions for transboundary waters that have been established within the framework of bilateral agreements signed with neighboring countries.

The Ministry of Environment has developed a strategic document entitled "Strategy for implementation of the WFD in Slovakia." The strategy has been approved by a Government Decision (No. 46/2004) and is coordinated in accordance with the implementation process that has been initiated by the European Commission. The strategy provides an overview of the WFD objectives, outlines the work program for the first planning cycle — that is to be completed by December 2009 — and identifies the key institutions directly responsible for the assigned tasks. The strategy further elaborates the coordination of the overall implementation process and establishes links among key players.

The implementation of the WFD is based on a number of key provisions. For each of these key provisions working groups have been established. The working groups consist of experts from all institutions involved in WFD implementation and are chaired by a nominated representative of the institution that is responsible for the organization of each working group. For the first planning phase that started in 2001, nine working groups were established. In 2006 the organizational structure was revised and the number of working groups increased to eleven. An overview of the working groups is presented in the following table:

Table 2: Working groups – Status in 2006 (Slovakia)

Working group	Assigned institution[2]	Another parties involved
Pressures and measures, protected areas	WRI	SNPA, SHMI, SWME, RO, DO, SIE, NGO
Heavily modified bodies	WRI	SWME
Intercalibration	WRI	
Typology, reference conditions	SHMI	WRI, AS, SEA,
Economic analyses	SWME	WRI
Monitoring	SHMI	SWME, SNPA, SGIDS
Groundwater	SHMI	WRI, RO, DO, SWME, NGO
GIS	SHMI	WRI
Water quantity (established 2006)	SWME	SHMI, NGO
Public participation (established 2006)	SHMI	WRI, SWME, NGO
Reporting	SEA	SHMI, WRI, SWME

The number of working groups is flexible and who is to participate in these groups is expected to be regularly revised and adjusted according to the circumstances presented and the perceived needs.

The water division of the Ministry of Environment coordinates, as mentioned above, the whole WFD implementation process. The coordination group at the ministry is subdivided into two units: the steering unit and the executive coordination unit. The steering unit is comprised of the top representatives of main institutions involved in water management. These representatives are: the general director of the water division of the ministry nominated also as the water director of Slovakia, the directors of the three departments that make up the water division and the directors of the WRI, the SHMI and the SWME. The role of the steering unit is to make decisions on the implementation process.

The executive coordination unit consists of a limited number of key experts directly involved in the implementation process, namely the coordinator, the technical coordinator, the coordinator for international cooperation and the heads of working groups. The coordinator is officially nominated by the general director of the water division and s/he is responsible for coordinating the implementation process, developing strategic documents, and cooperating at the EU level. S/he is nominated as a representative of the ministry in the strategic coordination group and as a representative in the committee established according to article 21 of the WFD. The technical coordinator is responsible for administrative matters and organizational arrangements.

The coordinator for international cooperation within the Danube River basin district coordinates all activities/duties that have to do with the ICPDR. The heads of working groups, established within the transboundary commissions are responsible for fulfilling

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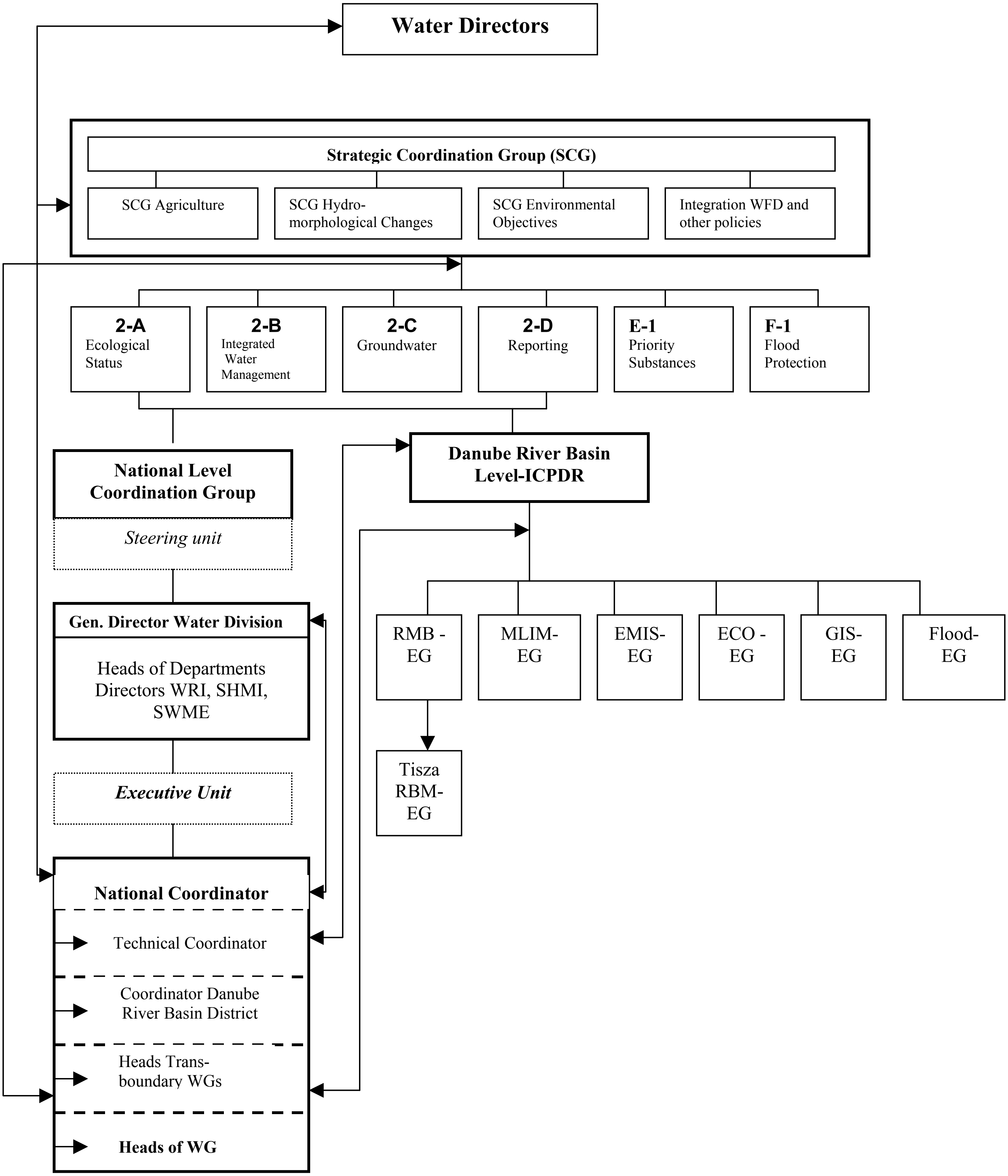
[2] WRI – Water Research Institute, SHMI – Slovak Hydrometeorological Institute,
SWME – Slovak Water Management Enterprise, SNPA – State Nature Protection Authority,
SEA – Slovak Environmental Agency, AS – Academy of Sciences, SGIDS – State Geological Institute of Dionyz Stur, RO – Regional offices, DO – District offices

all activities that are assigned to each working group. Heads of working groups are nominated also as members of the working groups that are organized by the European Commission or the ICPDR.
Regular meetings of the executive coordination unit are organized by the coordinator at least once a month. The structure of coordination of the implementation process is presented in the following diagram (Figure 6).

The WFD implementation process is still characterized by a centralized approach. Most activities during the first phase of WFD implementation were carried out by the Ministry of Environment or through its supervised institutions at the national level. This system of centralized functioning has worked till now because data have been already available in central registers and databases. Data were needed for the characterization of river basins, the performance of risk assessments and the designation of protected areas according to articles 5 and 6 of the WFD.

The disadvantage of the centralized approach has to do with the insufficient involvement of other regional authorities, mainly, the water management authorities at the sub-river basin. The role of these authorities is increasing at present and their active contribution to ongoing activities (program of measures, cost-effectiveness analysis, testing of heavily modified bodies) is becoming essential. At this point, regional environmental authorities are not directly involved in the implementation process. This presents a risk for future developments, especially when the role of regional authorities in decisionmaking would be necessary for the enforcement of program of measures. Furthermore, other stakeholders (industry, agriculture, municipalities, NGOs) have to be identified and a strategy for communication has to be developed with specific stakeholders.

Figure 6: Institutional Coordination for the Implementation of the WFD in Slovkakia


Water Directors
Strategic Coordination Group (SCG)
SCG Agriculture
SCG Hydro-morphological Changes
SCG Environmental Objectives
Integration WFD and other policies
2-A Ecological Status
2-B Integrated Water Management
2-C Groundwater
2-D Reporting
E-1 Priority Substances
F-1 Flood Protection
National Level Coordination Group
Steering unit
Gen. Director Water Division
Heads of Departments Directors WRI, SHMI, SWME
Executive Unit
National Coordinator
Technical Coordinator
Coordinator Danube River Basin District
Heads Trans-boundary WGs
Heads of WG
Danube River Basin Level-ICPDR
RMB - EG
MLIM-EG
EMIS-EG
ECO - EG
GIS-EG
Flood-EG
Tisza RBM-EG

Implementation of the Water Framework Directive in Bulgaria: A Status Report

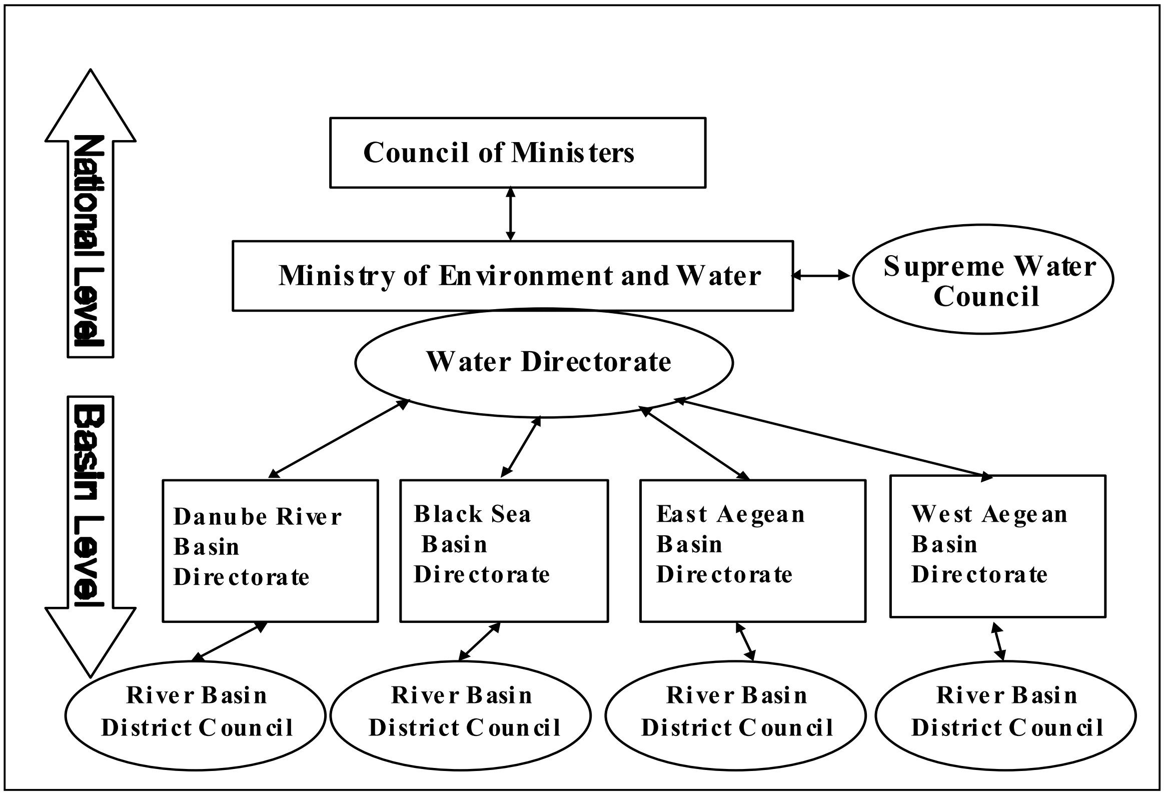
Lubka Kachakova and
Vladimir Dontchev

1. Institutions and Legislation for the Implementation of the Water Framework Directive

Water management is of high importance to Bulgaria since the country is located in international river basins including the Danube and the Black Sea international river basins. Furthermore, Bulgaria shares with Greece and Turkey a number of transnational watercourses.

The main target for water management policy in Bulgaria is the application of the hydrological river basin as the basic unit for water management. The execution of water management based on the river basin is the target of the WFD also. The national legislation in the field of water involves the Water Act and a number of regulations that give more details on the implementation of the act. Regulations, furthermore, have transposed the different directives on water adopted by the European Community. The 1999 Water Act embodies most of the elements of the WFD. A new amendment of the water act that was adopted by the Parliament in 2006 transposes all the requirements of the WFD.

Figure 7: Organization of Water Management in Bulgaria


National Level
Basin Level
Council of Ministers
Ministry of Environment and Water
Supreme Water Council
Water Directorate
Danube River Basin Directorate
Black Sea Basin Directorate
East Aegean Basin Directorate
West Aegean Basin Directorate
River Basin District Council
River Basin District Council
River Basin District Council
River Basin District Council

The Ministry of Environment and Water is responsible for water management and supervises the work of the River Basin Directorates that have been established. The division of Bulgaria into river basin directorates based on four river basin districts is new and has been established for the purposes of the execution of the WFD. The traditional administrative structure of Bulgaria involves 28 districts and 264 municipalities that are still remaining relevant in addition to the four new river basin districts.

Four river basin districts have been established: the Danube River Basin District, the Black Sea River Basin District, the East Aegean River Basin District and the West Aegean River Basin District (Figure 7). With the establishment of these river basin districts, Bulgaria integrates the implementation of the river basin district principle into national water management, including the transboundary aspect, as mandated by the Water Framework Directive.

Water management is organized at two levels: the national level and the river basin level. At the national level, the responsible institutions for water management are the Council of Ministers and Ministry of Environment and Water. The Water Directorate of the Ministry of Environment and Water is the body that specifically deals with water management (Figure 7). The Supreme Water Council is a consultative body to the Minister of Environment and Water. The water council is comprised of representatives of different stakeholders: government authorities, water management companies, scientific institutes and non-governmental organizations.

At the basin level, four river basin directorates have been established which are the competent authorities for the management of water in the four designated river basin districts. In each river basin district, a River Basin District Council has been developed (Figure 7). These councils have a consultative role in water management and are comprised of different stakeholders in water management including representatives of the administrative districts and municipalities.

2. Current Activities for the Implementation of the Water Framework Directive

According to the timetable provided by the WFD, these are the tasks that need to be accomplished for the implementation of the directive.

- Overview of river basins in order to characterize all water – identification of water typology and water bodies for all water categories (deadline 2004);

- Preparation of a national report concerning the implementation of articles 5 and 6 of the WFD (deadline 2005);

- Preparation of monitoring programs (deadline 2006); and

- Employment of monitoring results to identify main water management issues and to apply results for the preparation of the RBMPs and the program of measures (deadline 2007/2008).

A significant amount of progress has been made with regard to the identification of water bodies, the site selection for intercalibration and entry of sites selected into the Joint Research Center database. The determination of reference sites and conditions is still under work. With regard to the analysis of pressures and impacts, expert judgment is needed. Assumptions made to identify pressures and impacts must be clear and transparent. A pilot on how to perform risk assessment was executed in the Ogosta River. Another major concern is the implementation of the Waste Water Treatment Directive. The implementation of that directive requires significant investment in time and resources. This is because of the large number of infrastructure projects that need to be accomplished and, more specifically, the construction of wastewater treatment plants.

Priorities for 2006 include programs for monitoring the water status in order to establish a coherent and comprehensive overview of that status within each river basin district (article 8, WFD). Working groups have already been established for monitoring of surface water and groundwater. The design of monitoring programs and the revision of the existing classification system are of high priority to Bulgaria.

The floods that affected Bulgaria in the last decade have confirmed further that there is a need to:
--establish a proper system for operative monitoring, observation and early warning;
--improve prevention measures through legislative changes;
--improve coordination between various stakeholders and institutions; and
--apply stringent controls on the application of legislation.

3. Conclusion

The new structure of integrated water management based on the natural river basin principle and the practical implementation of requirements of the WFD and other demanding directives, like the Urban Waste Water Directive, present significant challenges for the country. Nevertheless Bulgaria has fully transposed the EU water directives and tries to implement them. The European funds, after the accession of Bulgaria to the European Union, will provide an additional guarantee for the successful implementation of national and European Union legislation in the field of water management.

The Implementation of the Water Framework Directive: Opportunities and Challenges for Greece

Ioannis Sibetheros

1. Challenges Presented by the Implementation of the WFD in Greece

Immediately after the Water Framework Directive (WFD) came into force, at the end of the year 2000, it became clear that its successful implementation in Greece would be a challenging and ambitious endeavor. Despite its recent adoption, the WFD has already become a key instrument for sustainable water policy in the country.

The implementation process of the WFD in Greece is not an easy task. The main challenges have to do with the particularities of the Greek region and with the fragmented and bureaucratic public sector. Further difficulties may emerge in the course of implementation of the WFD in the agricultural sector, due to the lack of sufficient data in certain fields (biological data, economic data) and in the application of public participation processes.

More specifically, the Greek region presents many idiosyncratic characteristics. These characteristics include a peculiar hydrological pattern. Western Greece receives more than 1 500 mm of rainfall per year, whereas Eastern Greece, along with the Aegean islands and Crete have considerable lower rainfalls (for instance, Attica's mean rainfall is approximately 400 mm/year). As a result, the main characteristic of Greek rivers, in many parts of the country, is their torrential flow. In total there are forty rivers in the Greek territory; only thirteen of them perform a flow of more than 3 m^3/sec during the summer period.

The complicated geological structure of Greece in addition to the fact that tectonic movements have occurred many times in the area has had as a consequence the formation of an enormous number of river basins compared to the total surface area of the country. The hydrogeological conditions differ significantly with the geographical latitude and longitude and most aquifers are fragmented and non-homogenous.

Furthermore, the demand for water is not well balanced. Major water users are mainly located in the eastern and southern regions of the country. These regions are at a disadvantage in terms of natural replenishment of water supplies. As a result of groundwater overexploitation, seawater intrusion, due to the decline of water table in many coastal aquifers, constitutes a permanent threat.

As a consequence of the unique hydrological circumstances and the fact that water demand and water supply are not aligned, many water projects need to be conducted in Greece. Many water projects that should be in operation within the next ten years are now in progress and they would have to be completed in tandem with the WFD implementation. The need to complete a large number of small and large public water works in conjunction with the WFD implementation places Greece at a disadvantage, as it creates legal and technical problems that cannot be easily tackled. Other EU countries have had most of their water infrastructure completed before embarking on the WFD implementation.

Another important challenge that Greece is facing is related to the pervasive and yet fragmented public sector. Fragmentation has been linked to the existence of many and diverse entrenched interests, and the isolation of various sectors that deal with water. Trying to consolidate the existing fragmented segments into one entity would be difficult. Yet the political and administrative reality of implementation involves the creation of an independent and accountable administrative structure, dedicated solely to integrated water resources management. The importance of independence and accountability of the institutions that would be responsible for water management cannot be stressed enough. Experience with institution building has demonstrated that the creation of independent and accountable institutions is not easy to accomplish in practice. A case in point is the preparation of a presidential decree, which was proposed in 2003 (after the adoption of the legislative act that transposed the WFD into national law) to ensure proper incorporation of the WFD into the Greek administrative structure. Unfortunately the adoption of the decree has been stalled for a long time, as it has been extremely difficult to coordinate and bring into agreement the different public entities that would be involved in its implementation.

Another important element in the WFD implementation is the development of effective public participation mechanisms. The requirements for public participation are discussed in many circles, yet the implementation of public participation procedures is still quite elusive. Several seminars and workshops that attempt to address the nuts-and-bolds of public participation have taken place and are scheduled for the coming years. However, most of the suggested public participation processes are geared for urban dwellers, and are not necessarily suitable for participants living and working in rural settings. For instance, trying to "sell" the WFD to Greek farmers, who have a strong political clout and a reputation of being very demanding and furiously individualistic, or convincing them about the need to place a price tag on water used for irrigation, will be a tremendously difficult task. It is, thus, imperative that the dialogue with the Greek farmers be initiated sooner than later, since water resources management in Greece is largely irrigation water management.

2. Main Obligations in WFD Implementation

One of the main obligations involves the transposition of the WFD into national legislation. Greece has already adopted the legislation (Law 3199/2003) that transposes the WFD into national legislation as well as several joint ministerial decisions, required by this law. Greece is in the final stages of adopting the presidential decree that transposes the technical provisions of the WFD into national law.

Another obligation has to do with the implementation of article 3 and annex I of the WFD, which include the identification/delineation of River Basin Districts (RBDs) and the assignment of groundwater bodies to them, as well as the identification of the appropriate competent authorities, for the application of rules of the WFD within each

RBD. Greece has already finalized the submission of the Article 3 report to the European Commission.

With regard to the implementation of articles 5 and 6 and Annex II to Annex IV, Greece has submitted to the European Commission a draft report. Many aspects of this report, including the economic analysis of water uses, need to be further elaborated.

The pilot river basin testing was executed in the Pinios River basin. One of the areas on which the Pinios pilot concentrated was groundwater. Groundwater was selected for study because of the frequent intrusion of seawater into aquifers. Furthermore, the pilot exercise explored the relationship between the WFD and agriculture attempting to investigate better agricultural and irrigation practices. The development of an integrated river basin management plan was further explored.

The intercalibration exercise has run smoothly up to this point. Twenty sites located in Greece (fifteen rivers, three coastal areas, two lakes) are included in the EU intercalibration network. The intercalibration exercise in the selected sites is still in progress.

The Central Water Agency is carrying out a key project in close collaboration with a number of private consulting firms, research institutes and universities. This project pertains to the tasks that are necessary for the implementation of the WFD, which is the preparation and submission of draft RBMPs for public consultation. The use of private sector, in this context, is important. The use of private consulting firms is necessary as the private sector could bring capacity and expertise in the implementation process.

Other key activities involve:
-Projects executed by the Institute of Geology and Mineral Exploration (IGME) in order to address the article 8 obligations on groundwater level and chemical monitoring;
-A project entitled "Development of Water Management Tools for the Greek RBDs." This project is carried out by private consulting firms and is funded by the Ministry of Development. This project is related to another project entitled "Activities for the implementation of the WFD in Greece." The Ministry of Development was the Ministry that used to oversee water management. It is important to fully take advantage of the expertise accumulated by the Ministry of Development in the efforts to implement the WFD;
-Related projects by other organizations and research institutions such as the Greek Biotope/Wetland Center and the Hellenic Center for Marine Research are being executed;
-The upgrade and integration of the national water qualitative and quantitative databases. Databases that are reliable are at the heart of a sound water management system. The databases must be constantly updated and seamlessly integrated (both in quantitative and qualitative terms) so that the water management system can be established on solid grounds.

3. The Institutional Structure for the Implementation of the Water Framework Directive

According to law 3199/2003, the following administrative structure would be in charge of the WFD implementation:
-National Water Committee;
-National Water Council;
-Central Water Agency;
-Thirteen Regional Water Directorates; and
-Thirteen Regional Water Councils.

At the heart of the water management system, as envisioned by the legislation, is the Central Water Agency established within the Ministry of Environment, Physical Planning and Public Works, which has the overall responsibility for establishing the national water policy. The Central Water Agency executes the managerial work for the functioning of the water management system. If the agency does not operate effectively, the water management system would severely underperform.

While the Central Water Agency is the body that, at present, is charged with water management, the thirteen Regional Directorates are envisioned to undertake that role in the future. The future role of the agency would be that of the management of water directorates using a "soft hand approach."

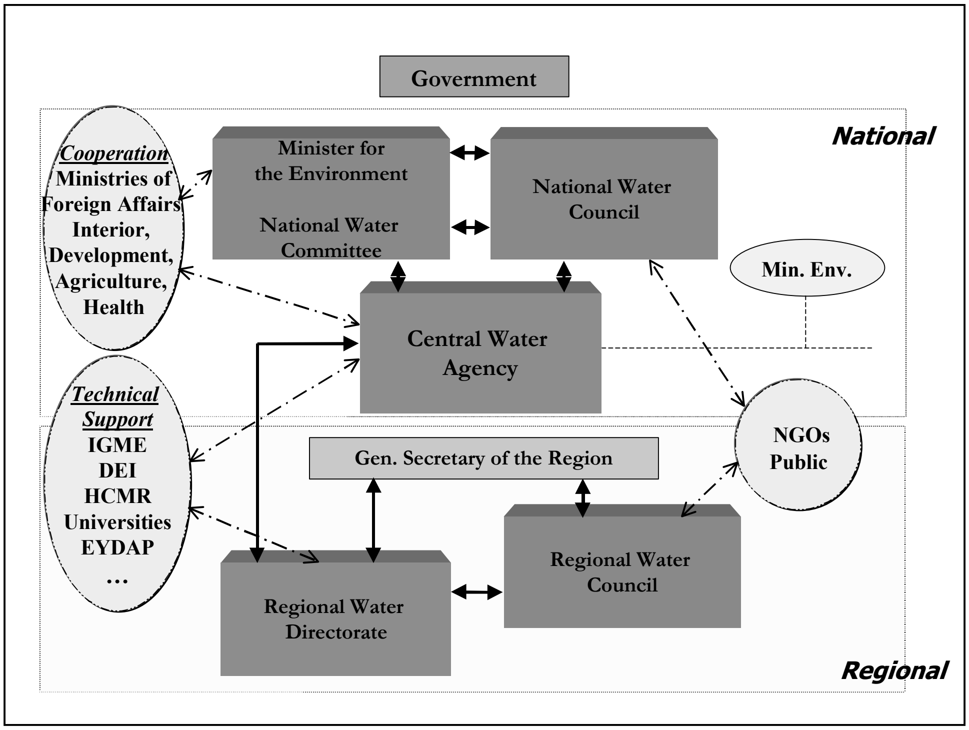
The Central Water Agency has developed partnerships with various institutions. For instance, the central water agency has established strong collaboration schemes with the Institute of Geology and Mineral Exploration, the Hellenic Centre for Marine Research and the Public Power Corporation as well as with other institutions that are to play a key role in the WFD implementation. Establishing strong collaboration schemes may not seem that challenging an endeavor. Putting together partnerships in Greece, though, is not an easy accomplishment.

Other institutions that play an important role in water management are the National Water Committee and the National Water Council. The role of the National Water Committee, which is headed by the Ministry of Environment, is to give political direction. The National Water Council is an advisory body to the National Water Committee.

Law 3199/03 integrates the public participation requirements of the WFD. The active involvement of interested parties is ensured by their representation at the national and regional water councils. Besides that, to achieve effective public participation by the environmental NGOs and the public, a significant amount of work needs to be further accomplished. Environmental NGOs are the "conscience" of the water management system and they must share responsibility in water management. NGOs should not just criticize the public administration for what that administration does not correctly accomplish. NGOs need to work constructively with public authorities.

The details of organizational structure of water management in Greece are provided below in Figure 8.

Figure 8: Administration of Water Management in Greece



4. Conclusions

The challenges Greece is facing during the WFD implementation process are simultaneously opportunities for the reorganization and capacity building of public entities in charge of water management. The integrated and sustainable water resources management promoted by the WFD is based on key principles. Such key principles include public participation, transparency, effectiveness and efficiency in meeting needs while making the best use of resources, accountability to the public, coherence of policies, and responsiveness to changes in demand or to new circumstances. It is hoped that adherence to such principles by the national, regional and local water authorities will create a new paradigm of effective governance for the entire Greek public sector.

The Stage of the Water Framework Directive Implementation in Romania

Aurora Romanita Vasiu

1. Introduction

The principles that govern water management in Romania are the following:
- water is a finite and vulnerable resource;
- water management is organized at the level of river basin;
- integrate water quality and water quantity in water management;
- cultivate river basin solidarity;
- apply the polluter pays principle;
- create economic value from water.

The policies concerning water management have to do with:
- administration — that is knowledge, conservation, rational use of water resources;
- rehabilitation and development of a national water monitoring system;
- financial mechanisms including the implementation of economic analysis as required by the WFD;
- institutional structure that is the implementation of the new structure of National Administration “Apele Romane”;
- implementation of European Union directives in the field of water; and
- participation through the institutional structure of the River Basin Committee.

There is an increasing realization that sustainable development is the only real alternative in the long run to address the relationship between humans and the environment. Furthermore, sustainable development is an obligation that has been assumed by the parliament and the government by the ratification of multilateral international agreements and a fundamental condition for joining the European Union.

Within the framework of sustainable development, water assumes three important dimensions: economical, social and ecological. All three dimensions have equal importance and are necessary in order to achieve sustainable development. Human health, prosperity, food security, industrial development and biological diversity depend on the sustainable management of water resources.

The objectives of sustainable management and development of water resources are multiple. First of all, the demand of urban and rural population for water has to be met. In this context, an evaluation of available existing water resources and of the capacity of water storage needs to be effectuated. Furthermore, planning is necessary in order to anticipate new demands on water use. In addition several works have to be performed, for instance, with regard to groundwater abstraction to ensure adequate water supply for villages. Many of the current works, such as building reservoirs and canals have to be finalized.

The improvement and development of water supply and the development of centralized sewage systems for urban and rural agglomerations have been acquiring increasing

importance. The improvement of sanitation and waste treatment infrastructure needs to be supported including:
--improvement of capacity of waste treatment plans and of treatment technologies;
--improvement of the stocking capacity of reservoirs;
--rehabilitation and development of water distribution network for municipalities and cities;
--extension of sewage network in urban settlements; and
--establishment of centralized water supply and sewage systems in rural areas.

The rehabilitation and further development of existing wastewater treatment plants and the building of new wastewater treatment plants for urban agglomerations of more than 2000 population equivalent could assist further in the improvement of water quality. Technological improvements for industrial processes in combination with the rehabilitation and extension of industrial wastewater treatment plants can go a long way to restore river ecosystems.

The reduction of risk of floods and droughts can be achieved by various methods including the construction of intake and impoundment areas and the regulation of stream flow in conjunction with the conservation of wetland areas. Further efforts concentrate on stream flow regulation, forestation, the prevention of soil erosion and the building of drainage works. The improvement of the information system is also crucial in addressing floods and droughts.

The use of water in its full potential could be achieved through the construction of new hydroelectrical power plants and the improvement of navigation waterways. Furthermore, ecological rehabilitation/river restoration can be accomplished through the designation of habitats for biodiversity development (for instance, the Green Corridor of Lower Danube and the Lower Prut area) and the development of civic responsibilities regarding the preservation of water quality.

2. Aspects of Implementation of Water Framework Directive and Integrated Water Resources Management

The Water Framework Directive (WFD) concentrates on the development of unitary standards that apply equally to all member states and on river basin management plans as a means to execute water policy. Furthermore, the directive provides a timetable within which states are to achieve “good status” for surface waters and groundwater.

The implementation of WFD in Romania has many different facets: legislative, administrative, scientific and technical. From a legislative viewpoint, the 107/1996 Water Law was modified and completed by the 310/2004 Water Law. The purpose of the 2004 law was to transpose the provisions of the WFD and other directives.

From an organizational viewpoint, an Inter-ministerial Water Council has been formed and is comprised of representatives of ministries and central authorities. The president of the Inter-ministerial Water Council is Romania’s representative to the International Commission for the Protection of Danube River.

The National Administration “Apele Romane” has been established within the Ministry of Environment and Water Management. According to the provisions of the 913/15.10.2001 Order of the Ministry of Environment and Water Management, the National Administration “Apele Romane” is the authority in charge of the implementation of the Water Framework Directive in Romania.

The tasks of National Administration “Apele Romane” are the following:
- development of a national strategy and policy application in the field of water quality and quantity and a national program of implementation of the European Union directives;
- administration and the operation of national water management system infrastructure; and
- the management and development of surface water and groundwater resources in order to achieve their potential.

Under the National Administration “Apele Romane,” there are eleven Water Directorates, which correspond to the eleven river basins of Romania. River Basin Committees have been organized in each basin. The purpose of these committees is to endorse the river basin management plans.

From a scientific point of view, the specialized institutions devoted to water management have had to modify their activities and plans in order to perform research needed to implement the WFD. Scientific institutions have to ensure the harmonization of their methodology with that elaborated by the International Commission for the Protection of Danube River taking into account the peculiarities of Romania. From a technical viewpoint, the teams of implementation within the National Administration “Apele Romane” are provided with data and technology needed in order to implement the directive.

Financial resources are necessary for the proper functioning of the branches of Apele Romane, for the development of monitoring activity and the performance of various analyses in accordance with the requirements of the WFD. Observations, measurements and sampling devices, as well as laboratory work are all required for the implementation of the WFD. In addition, specialized staff (for instance, biologists) should be employed and training courses should be held for the implementation of the European Union directives.

The basic elements of integrated water resources management as applied in Romania are the following:
- the elaboration and the implementation of Danube River Basin District Management Plan and the adoption of mutually agreed measures by the Danube countries, especially with regard to the reduction of transboundary polluting effects;
- the implementation of the new concept of river development based on the principles of integrated water management;
- the development of water supply and water sewage services at the regional level.

The application of integrated water resources management has the following implications:
- the integration of all water categories including surface waters, groundwater, transitional waters and coastal waters as well as the integration of quantitative and qualitative aspects of water;
- the integration of water uses at river basin level;
- the management of water and sanitation as an integrated part of water cycle;
- the integration of flood defense measures into conservation measures and the protection of aquatic biodiversity;
- the integration of water resources into other planning policies since water is one of the basic elements of life and a factor which determines the socio-economic development, being often a constraint on that development; and
- the participatory approach given that users, planners and policymakers are involved at all levels of water resources development and management.

Monitoring integrated water management involves a triple integration of:
- investigation areas at river basin level: natural surface waters (rivers, lakes, transitional waters, coastal waters, heavily modified or artificial waters, groundwater, protected areas, waste waters);
- investigation media: water, sediments, biota;
- elements/components: biological, hydromorphological and physical-chemical elements from a qualitative and a quantitative point of view.

The term "heavily modified water body" presents an innovative concept that has been created to allow for the pursuit of hydraulic works that bring socio-economic benefits. The designation of waters as modified/artificial could simultaneously spur activities for the restoration of such waters. The concept could be used in general to mediate disputes between engineers and ecologists.

River basin development, as re-conceptualized, integrates flood defense into the conservation and development of aquatic environment. River basin development is based on the following principles:
- construction of strategic reservoirs in areas that are flood prone;
- construction of polders for the mitigation of flood peaks;
- embankment of short river sectors only for the flood defense of cities and or for the protection of very important economic and social assets;
- conservation/restoration of wetlands for the mitigation of floods and for the conservation and development of aquatic biodiversity.

Based on the provisions of the Water Framework Directive, Danubian countries have to develop a Danube River Basin District Management Plan. According to the Annex VII of the Water Framework Directive, a River Basin Management Plan must include:
1. the characteristics of river basin district;
2. an analysis of pressures and impacts;
3. identification and mapping of protected areas;
4. integrated water monitoring;

5. environmental objectives;
6. an economic analysis of water use;
7. a general program of measures;
8. special programs of measures on the sub-basin level for specific water categories and ecosystems;
9. public participation provisions;
10. the actors involved in river basin management; and
11. contact points and procedures for obtaining information.

The contracting parties to the Danube River Protection Convention (DRPC) established that the Danube River Basin District Management Plan would have two parts — a national and an international part. Parties to the convention adopted a roof report (Part A report) that includes some of the preliminary requirements of a river basin management plan for the whole Danube River basin district.

The (Part A) roof report provides information that is relevant on a basin-wide basis. For instance, it includes information on all rivers with a catchment size of more than 4 000 km²; all lakes and lagoons with an area of at least 100 km²; the main canals; all transboundary groundwater bodies larger than 4 000 km²; the Danube River, Danube Delta and coastal waters.

In addition to the (Part A) roof report, states parties to the DRPC developed Part B reports. Part B reports contain preliminary information on the national RBMPs of the Danubian countries

3. Future Aspects of the Implementation of the Water Framework Directive

According to the provisions of the 310/2004 Water Law, the national water management plan of Romania must be comprised of eleven river basin management plans. The 2004 national report includes the eleven river basin management plans of river basin districts, which are basically hydrological areas. The report meets the reporting requirements set by the European Commission and is in accordance with article 5 of the WFD.

The 2004 national report included further information on the progress of implementation of article 6 and annex IV and the registration of protected areas. The national report included also information on the progress of implementation of article14 on public consultation. The 2004 national report, as mentioned, is a synthesis of reports of the eleven river basin management plans issued by the eleven water directorates.

3.1. Development of the Monitoring System

A national integrated water monitoring system is essential not only for domestic purposes but also in order to facilitate the international cooperation in the Danube basin.

The stages for the development of an integrated water monitoring system are the following:

- Stage I: 2002 -2004
  - Identification and delineation of water bodies;

-Initial characterization of water bodies;
-Definition of monitoring strategy on the basis of initial characterization of water bodies;
- Stage II: 2004 – 2006
  -Design of the monitoring system;
- Stage III: starts on December 2006
  -Operation of monitoring programs;
  -Further characterization of water bodies;
  -Elaboration of programs of measures;
  -Publication of draft river basin management plan;
  -Implementation of programs of measures;
  -On-going monitoring and further adaptation of the monitoring system.

Prerequisites for the development of the national integrated water monitoring system include:
--adequate implementation of the WFD and of other EU directives in the field of water;
--implementation of international and bilateral conventions, for instance, the International Convention for the Protection of the Danube River (1994); the Convention for the Protection of Black Sea against Pollution (1992); the Helsinki Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992);
--application of requirements of European institutions such as the EUROWATERNET.

In order to develop a national integrated water monitoring system several steps have to be completed, for instance:
strengthening existing monitoring sub-systems; establishment of new monitoring programs; definition of new aquatic media for investigation; monitoring of new quality elements and parameters; employment of well-trained personnel; and the acquisition of necessary equipment to execute measurements and observations. To comply with its international obligations, Romania has set up a number of monitoring programs:
--The surveillance program deals with the overall assessment of water status in each river basin.
--The operational program evaluates water bodies identified as being at risk of failing to reach the environmental objectives.
--The investigative program identifies the reasons for not reaching the environmental objectives and assesses the impacts of accidental pollution.
--The international convention monitoring program focuses on monitoring sites and parameters as required by the international conventions.
--The reference program has been put in place for sites in natural and near natural conditions so as to establish the reference conditions.
--The best available sites program is applied for types of water bodies for which a reference site is impossible to find.
--The intercalibration program is referring to the sites that participate in the development of data for the EU intercalibration exercise.
--The hydromorphological alterations program identifies the impacts of hydromorphological alterations on some provisionally identified heavily modified water bodies.

--The drinking water program involves sites used for the abstraction of drinking water (Directive 75/440/EEC).
--The vulnerable zones program involves sites located in areas identified as being vulnerable to nitrate pollution originating in agricultural fields (Directive 91/676/EEC).
--Ichtyo-fauna program is applied for the identification of salmonid and cyprinid streams (the 78/659/EEC directive deals with the protection of aquatic species of economic value).
--The habitat and species program has to do with the monitoring of zones identified for the protection of habitats and species where maintaining or improving the water status is an important consideration.

The new monitoring system is included in the "Guidelines for Development of the Integrated Water Monitoring System in Romania" (SMIAR), approved by Government Order 31/13.01.2006 of the Minister of Environment and Water Management. In comparison with the former monitoring system, the new monitoring system integrates new investigation media and includes 7 231 sites versus the 5 999 sites that were already monitored. Monitoring the water status is realized in forty-one laboratories (regional and local) of the National Administration "Apele Romane" network. These laboratories specialize in physio-chemical and biological analysis. Some of the monitoring sites are included in the transboundary monitoring system that encompasses the Danube River basin, the Black Sea basin and the EUROWATERNET network. A transboundary informational system ensures the transfer of information from Romania to the transboundary commissions.

3.2. Economic Analysis of Water

Another important objective of the Water Framework Directive is the use of economic analysis to select appropriate tasks for the program of measures and river basin management plans. The economic analysis, according to the ICPDR strategy, involves the use of indicators. This list of indicators was developed based on the WATECO Guidance Document issued by the European Commission. The economic analysis of water use involves in particular:
- assessment of the economic importance of water uses;
- provision of input into the development of a baseline scenario (that is the assessments of forecasts in key economic drivers likely to influence pressures and impacts on water);
- assessment of current levels of cost recovery in water services; and
- preparation of a cost-effectiveness analysis.

The Romanian national strategy with respect to the economic analysis during the first phases of the river basin management process involves the development of a baseline scenario — that is the assessment of forecasts in key economic drivers likely to influence different pressures and impacts and, thus, the status of water. Trends in water supply and water demand need to be further evaluated. The focus is likely to be on the changes in the general socio-economic variables (for instance, population growth), in the economic growth of main sectors and in the implementation of planned investments.

3.3. Public Participation

Public participation is executed at the regional and local level according to the provisions of Water Law 107/1996 as modified and amended by the Law 310/2004. The River Basin Committees provide consultative mechanisms at all levels. The fundamental objectives of river basin committees are the following:

- efficient cooperation between the institutions involved in water management and local public administration;
- achievement of balance between conservation and sustainable development of water resources.

According to Governmental Decision 1212/2000, a basin committee is set up at the River Basin Directorate level of National Administration "Apele Romane." The water directorates of National Administration "Apele Romane" provide technical secretariat functions for the River Basin Committees.

The tasks of River Basin Committees are to:

- collaborate with their respective water directorate in the implementation of national water management policies and strategies;
- agree on plans and schemes related to water management works;
- approve the integrated qualitative and quantitative river basin management plan;
- recommend priorities for financing of sustainable development programs;
- propose revisions of water management norms and standards and, when necessary, develop quality standards for water management in their river basin;
- inform the public about a planned activity at least thirty days before such activity takes place; and
- organize public debates on all issues that have to do with water management.

Every water directorate of the National Administration "Apele Romane' has an office of public relations. The public relations office deals with the preparation of press conferences and responds to questions on the challenges posed by the implementation of the European Union directives and by the elaboration of certain chapters of river basin management plans.

For the improvement of public participation process, two ministerial orders have been issued.

--Order no. 1012/19.10.2005 of the Minister of Environment and Water Management entitled "Access mechanism to information of public interest in water management;" and

--Order no. 1044/27.10.2005 of the Minister of Environment and Water Management entitled "Public consultation in decisionmaking in the water management field."

To achieve the purposes of the Water Framework Directive, the basin committees shall ensure that, through their own website, they make available for comments to the public for, at least, a period of six months:

(a) a timetable and work program for the elaboration of river basin management plans, including a statement on the consultation measures to be taken, at least three years before the date of approval of the river basin management plan;

(b) an interim overview of the significant water management issues identified in the river basin, at least, two years before the date of approval of the river basin management plan;
(c) a draft of the river basin management plan, at least one year before the date of approval of such plan.

The RBMPs and programs of measures are to be developed and reviewed by the National Administration "Apele Romane" and its branches. The basin committees are to endorse these plans and the plans are to be approved by a governmental decision.

The 2004 Romanian national report, which constitutes a synthesis of reports issued by the eleven water directorates, was elaborated by the National Administration "Apele Romane" together with the water directorates and in collaboration with stakeholders. Such stakeholders included: environmental protection agencies, county directorates for agriculture, branches of Romsilva, and other local and county authorities. Furthermore, administrations of regions, the national institute of statistics, the research institute of pedology and agrochemistry, the national institute of research and development of 'Danube Delta,' the national institute of marine research and development "Grigore Antipa," the national institute of hydrology and water management, the national institute for research and development of environmental protection and various water users were involved in the consultation process.

The 2004 reports prepared by the water directorates were presented and discussed at the plenary meetings organized by the water directorates, where the main stakeholders at the river basin level participated. These stakeholders included representatives of the Romanian association of water, prefects, presidents of the county authorities, representatives of environmental agencies and of local health authorities as well as local environmental NGOs. The registers of protected areas were developed during workshops organized at the level of each water directorate, where the main stakeholders were involved in the process of identification of protected areas. More specifically, stakeholders invited to participate in the workshops included the Romanian association of water, environmental protection agencies, the public health agencies, county forestry branches of the national forestry authority, county authorities for agriculture and rural development, representatives of offices for pedological and agrochemical studies.

At the level of each water directorate, main stakeholders have been identified according to the categories of stakeholders that have been designated by the International Commission for Protection of the Danube River. Also workshops have been organized providing information on the requirements of the WFD. The dissemination of information has improved though the use of the Internet. To facilitate public access to and understanding of the "2004 Summary Report," the translation and wide dissemination of this report with the ICPDR financial support have been initiated.

Within the framework of the UNDP/GEF Danube Regional Project that concentrated on enhancing access to information and public participation in environmental decisionmaking, the following types of activities have been suggested for Romania:

- Improvement in the functioning of river basin committees focusing on communication and the involvement of the public;
- Development of a manual for authorities in order to ensure public access to water related information and the sharing of practices regarding public involvement in decisionmaking;
- Development of a brochure for the wider public and NGOs (inter-linked with the appropriate manuals) on what information can be dispensed and where and how the information on water related issues can be accessed including how the public can be part of the decisionmaking process.

4. Conclusion

In general, the implementation of WFD in Romania involves the execution of a number of measures for surface waters, groundwater and protected areas. More specifically,

--for surface waters:

- Measures to maintain the existing high and good status of all surface water bodies and the future preservation of water resources quality in order to protect human health and biodiversity and to control wastewater discharges;
- Measures to restore artificial and heavily modified water bodies with the aim to achieve good ecological status;
- Measures to reduce pollution caused by priority substances and the phasing out of emissions and discharges of priority hazardous substances.

--for groundwater:

- Measures to prevent the deterioration of the status of all bodies of groundwater;
- Prohibition of direct discharges of pollutants into groundwater resources;
- Measures to achieve good groundwater status.

--for protected areas:

- Measures to reach the required standards for protected areas;
- Measures to enhance the safety of water use.

Development of Institutions for the Implementation of the Water Framework Directive in Slovenia

Helena Matoz

1. Transposition of the Water Framework Directive

The transposition of WFD into Slovenian legislation took place while Slovenia was in the midst of adoption of its water legislation. This was a fortunate occurrence as the Republic of Slovenia (RS) had the opportunity to transpose most of the elements of the WFD into its national legislation. The Water Act (OJ of RS, 67/02) in conjunction with a number of regulations includes provisions on:

- Principles of integrated water management;
- WFD terminology;
- Environmental objectives;
- Organizational changes in the water sector (competent authority, river basin districts, international river basins);
- Requirements for the preparation of river basin management plans and programs of measures;
- Methodologies for river basin management;
- Economic principles;
- Public participation in decisionmaking;
- Timeframe for the WFD implementation.

Requirements related to water quality issues are included in other directives. These directives are mentioned in Annex VI of the WFD. Provisions for some of these quality requirements are included in different acts that, in addition to the Water Act, deal with water management.

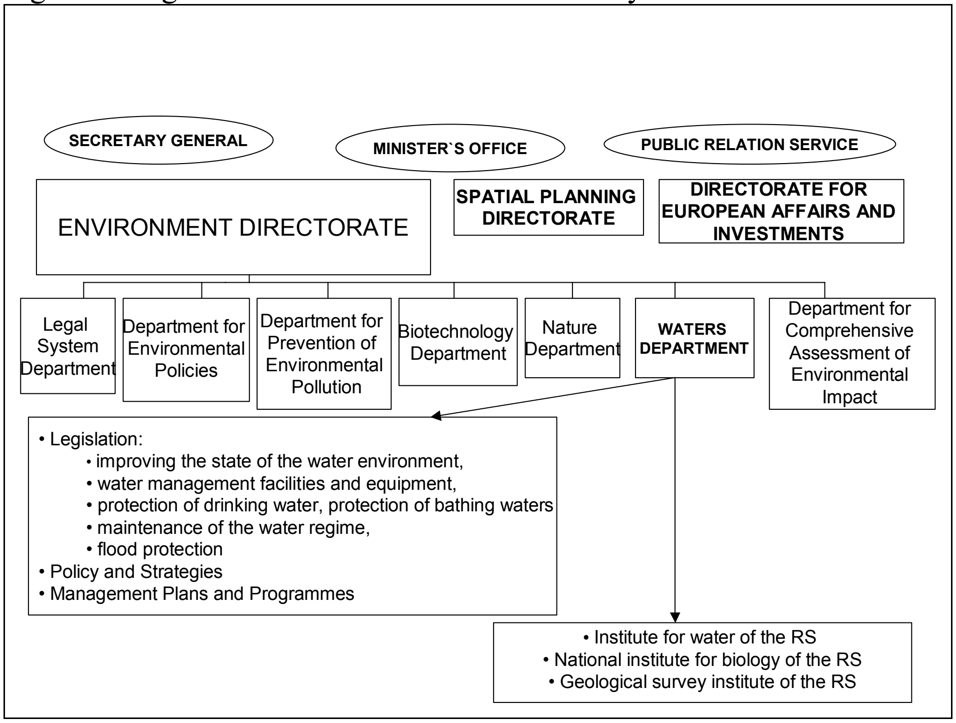
The Environmental Protection Act (OJ of RS, 32/9, 1/96 and 41/04) and the subsequent regulations that put it into effect deal specifically with the enactment of limit values, the establishment of monitoring and information systems, taxation issues, for instance the wastewater tax, the protection of sensitive and vulnerable areas as well as discharges from point and non-point sources. The Nature Protection Act (OJ of RS, 56/99 and 96/04) incorporates the standards for nature protection including the requirements of Natura 2000, the Birds Directive and the Habitats Directive. Requirements related to the standards for drinking water are dealt with regulations such as regulations on the suitability of drinking water and are the responsibility of the Ministry of Health. Requirements included in the Bathing Water Directive are dealt with both in the Water Law and the Law against Drowning which is the responsibility of the Ministry of Defense.

2. Institutional Organization for Implementation of the Water Framework Directive

The Ministry of the Environment and Spatial Planning is the competent authority for the implementation of the Water Framework Directive. The Ministry of Environment and Spatial Planning is comprised of three directorates: The Environment Directorate, the Spatial Planning Directorate and the Directorate for European Affairs and Investments.

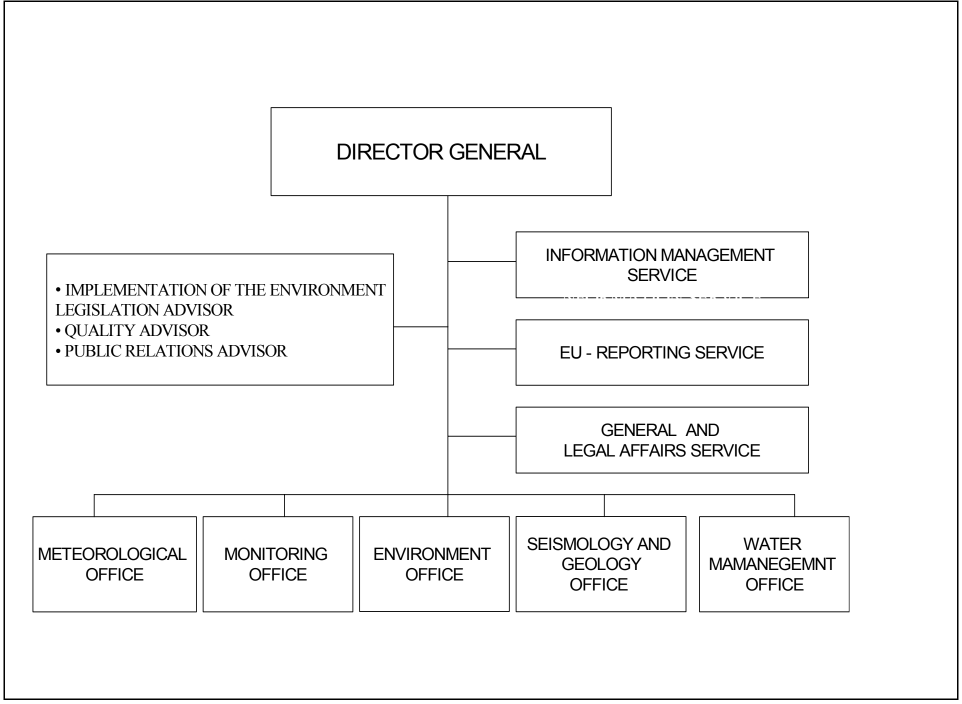
The Water Department of the Environment Directorate deals specifically with legislation, the policy and strategy regarding water and the water management plans and programs. A substantial amount of technical work related to the WFD implementation is delegated to specialized institutions. The Institute for Water deals mostly with surface water. The Geological Survey Institute deals primarily with groundwater. The National Institute for Biology deals with ecological issues as well as coastal waters (see Figure 9).

Figure 9: Organizational Structure of the Ministry of Environment in Slovenia


SECRETARY GENERAL
MINISTER`S OFFICE
PUBLIC RELATION SERVICE
ENVIRONMENT DIRECTORATE
SPATIAL PLANNING DIRECTORATE
DIRECTORATE FOR EUROPEAN AFFAIRS AND INVESTMENTS
Legal System Department
Department for Environmental Policies
Department for Prevention of Environmental Pollution
Biotechnology Department
Nature Department
WATERS DEPARTMENT
Department for Comprehensive Assessment of Environmental Impact
• Legislation:
• improving the state of the water environment,
• water management facilities and equipment,
• protection of drinking water, protection of bathing waters
• maintenance of the water regime,
• flood protection
• Policy and Strategies
• Management Plans and Programmes
• Institute for water of the RS
• National institute for biology of the RS
• Geological survey institute of the RS

The Environmental Protection Agency is the second most important institution that deals with implementation and the application of administrative procedures such as reporting and permitting. The environmental agency is organized internally under a director general and includes, *inter alia*, a water management office and a monitoring office. Figure 10 provides the organizational framework of the environmental agency. The environmental agency is comprised also of eight regional offices. This regional organization of the environmental agency in eight offices is part of the historical evolution of the agency.

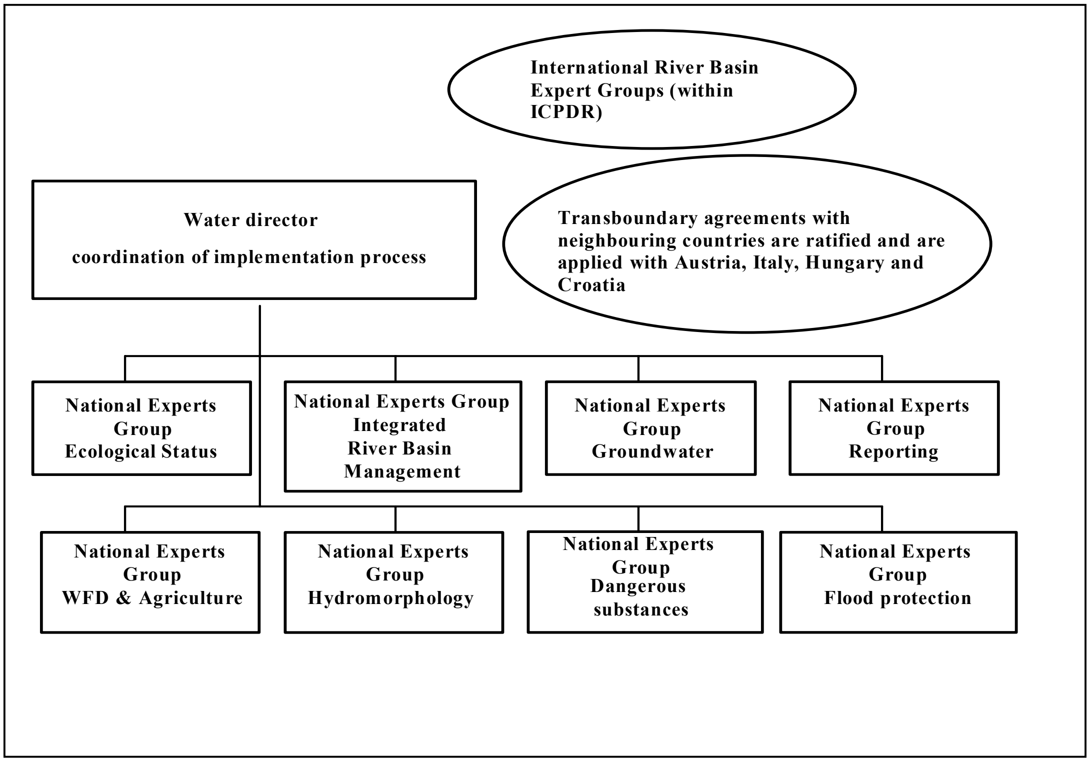
Figure 10: Structure of Environmental Agency in Slovenia


DIRECTOR GENERAL
• IMPLEMENTATION OF THE ENVIRONMENT LEGISLATION ADVISOR
• QUALITY ADVISOR
• PUBLIC RELATIONS ADVISOR
INFORMATION MANAGEMENT SERVICE
EU - REPORTING SERVICE
GENERAL AND LEGAL AFFAIRS SERVICE
METEOROLOGICAL OFFICE
MONITORING OFFICE
ENVIRONMENT OFFICE
SEISMOLOGY AND GEOLOGY OFFICE
WATER MAMANEGEMNT OFFICE

For dealing with the key activities for the implementation of the Water Framework Directive, and the so-called Common Strategy on the Implementation of the WFD that has been adopted by the European Commission, expert working groups have been nominated at the national level. The first Expert Working Group was nominated in May 2001. At this point, there are eight working groups that deal with various aspects of water management in Slovenia. In addition to these eight working groups that deal with national and European matters there are international river basin expert groups that deal with the ICPDR activities and expert groups that deal with the transboundary agreements. Slovenia is party to a number of international agreements with other countries such as Italy, Austria, Hungary and Croatia.

The responsibility of the water director is to coordinate and harmonize the activities of the working groups. Figure 11 below provides the details of organization of working groups.

Figure 11: National Expert Groups for the Implementation of the WFD in Slovenia


International River Basin Expert Groups (within ICPDR)
Water director
coordination of implementation process
Transboundary agreements with neighbouring countries are ratified and are applied with Austria, Italy, Hungary and Croatia
National Experts Group Ecological Status
National Experts Group Integrated River Basin Management
National Experts Group Groundwater
National Experts Group Reporting
National Experts Group WFD & Agriculture
National Experts Group Hydromorphology
National Experts Group Dangerous substances
National Experts Group Flood protection

3. Implementation Activities in Slovenia

The water act has identified two international river basin districts: The Danube and the Adriatic. The Danube River basin covers 80 percent of the Slovenian territory and the Adriatic River Basin covers the remaining 20 percent. Rules for determining the river basins, sub-basins and river basin districts have been established in the Slovenian legislation (OJ of RS, 82/03). The borders between the Danube River basin and the Adriatic River basin are based on the surface waters and not on the groundwater. The use of groundwater to determine the basin borders would present a number of problems due to the fact that the region is a karst region. In a report that Slovenia has provided to the European Commission it is detailed how the groundwater is to be dealt with given that the borderline between the two basins is based on surface waters.

In addition to these two transnational basins, five sub-basins have been identified. The Drava sub-basin, the Mura sub-basin, the Sava sub-basin, the Soca sub-basin and the sub-basin of the Adriatic Sea. The division of water administration into sub-basins has historical origins and the sub-basins correspond to the regional offices of the Environmental Agency. The law, further, has provided policymakers with the possibility of developing river basin plans to address specific issues. At this point, though, it is foreseen that two National River Basin Management Plans will be executed — that of Danube and that of the Adriatic. The sub-basins will be used for the purposes of public participation activities.

Other activities undertaken in the course of implementation of the WFD include:

--the designation of groundwater bodies (see Rules on methods for determining water bodies for groundwater, OJ of RS, 65/03; Rules on determining water bodies for groundwater, OJ of RS, 63/05); and

--the designation of surface water bodies (see Rules on methods for determining water bodies for surface water, OJ of RS, 65/03; Rules on determining and classification of water bodies for surface water, OJ of RS, 63/05).

It is worth noting the designation of Slovenia as a vulnerable zone (OJ of RS, 35/01) for the purposes of implementation of the Nitrates Directive and the designation of sensitive areas (OJ of RS, 31/01) in accordance with the Urban Waste Water Directive

Other implementation activities include the first report on article 3 implementation that was provided to the European Commission in June 2004. The second report on the implementation of articles 5 and 6 of the WFD was sent to European Commission in July 2005. Both the first report and the second report are available on the ministry website.

The preparation of RBMPs for the Danube River basin and Adriatic Sea basin has already started. A related decree that has been enacted includes detailed provisions encompassing methods for preparing river basin management plans (OJ of RS, 26/06). The river basin management plans in Slovenia will be incorporated into the regulatory framework through a government decree and, thus, will become legally binding documents. The preparation of the monitoring program is being launched in compliance with a decree on the quality standards of groundwater (OJ of RS, 100/05) and a decree on the chemical status of surface waters (OJ of RS, 11/02).

An integrated approach to water management and the implementation process of the WFD have been successful so far. The organization of work within the Ministry of Environment and Spatial Planning along with the coordination of experts in related working groups and specialized institutions is considered effective. Nevertheless, the tasks related to the integrated water management are complex and considerable expert work should be further executed.

A River Basin Management Plan for the Danube Basin: Role and Achievements of the International Commission for the Protection of the Danube River (ICPDR)

Philip Weller

1. The Danube River Basin Protection Convention

The Danube River basin is the most international river basin in the world. It is comprised of nineteen countries, thirteen of which have major parts of their territories in the Danube basin and it is populated by eighty-one million people.

The Danube River Protection Convention (DRPC) was adopted in 1994 and entered into force in 1998. The DRPC provides the legal framework for cooperation for the protection of water and ecological resources and their sustainable use in the Danube River basin. Cooperation among the countries of the Danube existed before the adoption of the DRPC despite divisions that existed between eastern Europe and western Europe. In the early 1990s, with the changes that happened in the political regimes of the region, the convention provided the articulation of cooperative management of the Danube River.

The Danube River Protection Convention has multiple objectives that are similar to the objectives pursued by the WFD. Some of these objectives include:

- Sustainable and equitable water management;
- Conservation, improvement and the rational use of surface waters and groundwater;
- Control of discharges of wastewater, inputs of nutrients and hazardous substances from point and non-point sources;
- Control of floods and ice hazards;
- Control of hazards originating from accidents (warning and preventive measures);
- Reduction of pollution in the Black Sea from sources in the Danube catchment area.

One of the most important objectives of the International Commission for the Protection of the Danube River (ICPDR) established by the DRPC is to ensure the sustainable and equitable management of water resources. The management of water quantity in tandem with water quality and the control of floods and ice hazards are other important objectives. Floods in the region afflict many countries and present challenges for water management. The reduction of pollution in the Black Sea has preoccupied the parties to the DRPC. About 60 percent of water of the Danube catchment area is discharged into the Black Sea. Thus, the reduction of polluting inputs into the Danube River is an important factor for maintaining a healthy ecosystem in the Black Sea.

The ICPDR is responsible for the implementation of the DRPC. The contracting parties to the convention are: Austria, Bulgaria, Croatia, the Czech Republic, the European Union, Germany, Hungary, Moldova, Romania, Serbia, Montenegro, Slovakia, Slovenia, Ukraine, Bosnia and Herzegovina. These are the countries the major territories of which are located within the Danube River catchment. There are other Danube countries with less than 2 000 km² in the Danube (Albania, Italy, Macedonia, Poland and Switzerland) that are not signatories of the international treaty.

State parties to DRPC adopted measures for the protection of the Danube River before the enactment of the WFD. With the support of the GEF, the first Danube transboundary analysis and a revised strategic action plan were prepared in 1998. Based on these documents, the ICPDR prepared a joint action program that became the main common policy document of the ICPDR countries. This joint action program addressed various issues including pollution, the protection of wetlands and the control of floods. In some way, the joint action program provided the preliminary basis for the adoption of the program of measures prescribed by the WFD.

2. The Water Framework Directive and the International Commission for the Protection of the Danube River

With the adoption of the WFD, the ICPDR has been nominated the platform to develop the Danube River Basin Management Plan. It must be underlined in this context that the ICPDR is not the competent authority for the development of the Danube RBMP. The national governments are the competent authorities that report directly to the European Commission. The state parties to the DRPC submit to the European Commission the Part B report that involves the national implementation of the WFD and the Part A report (or Roof report), which includes the international coordinating efforts. Some countries have chosen to present the Part A report as an annex to their national report. The purpose of the ICPDR is to provide a coordination forum that would allow countries to implement the international component of national obligations including the adoption of river basin management plans.

Within the framework of the WFD, the role of the ICPDR is to provide for:
--coordination;
--information exchange;
--development of strategies for RBM planning (comparable and consistent methodologies are important in this context);
--development of the Danube River basin roof report which is a synthesis of national efforts; and
--the harmonization of methods and mechanisms.

In addition to cooperation among the countries in the context of the ICPDR, there are many bilateral agreements between the countries involved. There are also other multilateral efforts, such as the Tisza initiative and the cooperation in the Sava River. There is cooperation with third countries that is countries that are not members of the ICPDR.

The roof report (Part A report) of the Danube River basin district is a basin-wide overview of the Danube River basin analysis. It was approved at the ministerial meeting of December 13, 2004. The roof report is the work that is executed by state parties and provides a synthesis of the information and data provided by the parties. State parties to the DRPC have worked together constructively to produce the report. This is a model of international cooperation that could be applied to other river basin districts.

The Danube analysis report deals with:
- all rivers with catchments of more than 4 000 km²;
- all lakes with an area of more than 100 km²;
- transitional and coastal waters (overview);
- the main navigation canals; and
- all transboundary groundwater bodies with an area of more than 4 000 km².

The Danube basin analysis report provides the foundation for the development of a Danube River basin program of measures. It identifies where and in which sectors action has to be taken in order to achieve good ecological status for water by 2015.

The key objective of the Danube analysis report is to achieve comparable results throughout the basin. This is not an easy task given the different political backgrounds of the countries involved. In order to prepare the report, data and information were officially delivered by the competent authorities of the Danube countries based on previously agreed criteria. Other times published data from basin-wide studies or modeled data (with regard to nutrient emissions, for example) were used. All the information included in the report was used in agreement with the Danube countries.

More recent efforts of the ICPDR are focused on the development of a River Basin Management Plan. A strategic paper, a road map and a work plan have been developed as well as issue papers on key water management issues including organic, nutrient, hazardous substances pollution and hydromorphological alterations.

The coordination mechanisms for the implementation of the WFD involve the ICPDR coordinating body and bilateral/multilateral coordination (for instance in the Sava and Tisza sub-basins). Future activities within the framework of the ICPDR include the following:

- Adaptation of monitoring networks;
- Finalization of intercalibration exercise;
- Development of issue papers (organic, nutrient, hazardous substances, pollution, hydromorphological alterations);
- Organization of relevant workshops;
- Establishment of relevant task groups; and
- Information exchange with other river basin commissions.

With regard to monitoring, which is an important issue, the ICPDR has not developed its own monitoring network. It has used, instead, selected monitoring stations established by state parties in order to launch a transnational monitoring network for pollution control. The finalization of the intercalibration exercise has encountered some problems that are due mostly to the lack of scientific skills and the different methodologies of state parties. The ICPDR has tried to involve environmental NGOs and industry in its procedures and many workshops and task groups take place with NGO participation. Information exchange with other international commissions has been useful.

Many efforts are under way for the WFD implementation. The ICPDR views its relationship with the WFD implementation process as mutually beneficial. The WFD process has assisted the ICPDR in doing the work it was initially conceived to do. The proper institutions and procedures are now in place. However, considerable work needs to be accomplished to achieve results and this needs the commitment of state parties. Fortunately, in the ICPDR context, the commitment of states both to the implementation process and to the attainment of concrete results is quite strong.

Strategies and Institutional Organization of the International Scheldt Commission for the Implementation of the Water Framework Directive

Arnould Lefébure

1. Overview

The Scheldt is a small river. Its river basin covers hardly 22 116 km² and its district is less than double the size of the river basin area. The Scheldt International River basin is shared among the states of France, Belgium and the Netherlands. Certain regions of Belgium, because of the constitutional structure of Belgium, are also parties to the international institutional arrangements that govern the Scheldt River basin district. These regions are the Walloon Region, the Flemish Region and the Brussels Capital Region of Belgium. Overall, the Scheldt district involves more than thirteen million people and is comprised of six "hydrological states."

Despite its small size, the Scheldt district is subject to a multitude of pressures coming from a high, yet heterogeneous population density that involves 20 habitants/km² in the South and more than 1 000 inhabitants/km² in cities such as Brussels, Lille and Antwerp. With high population density comes extensive pollution. The area is experiencing one of the highest railway, road and inland water traffic in the world. Furthermore, the diversity of population implies different water management objectives that may originate from the effects of transboundary pollution increasing, thus, the risk for conflict.

This population of the Scheldt district has been growing with the development of the commercial cities since the 12th century, through the course of industrial revolution in Europe. The states in the region have developed intensive agriculture, high industrialization, particularly in the textile sector, the mineral sector and the steel sector. States have developed extensive transportation infrastructure (railway, inland and road). Various polluting substances are discharged into the waters in order to respond to the various needs of inhabitants in an area, 25 percent of which has been obtained from the sea.

Today the socio-economic context presents many challenges. The richness of the past has been replaced with unemployment that is quite high in some sectors. Countries have engaged, however, in efforts to improve their circumstances. The Netherlands has put emphasis on tourism, the development of universities and has been able to attract an affluent population. Brussels is considered the capital of the EU and has been experiencing strong development. The Flemish region has created natural parks and green paths. With all these developments come some changing attitudes about water and efforts are undertaken to make the water attractive again especially with regard to the enjoyment of leisure activities. The question is whether it would be possible for the hydrological states in the region to share the water.

In order to share space and water among so many potential and real uses, strong cooperation is needed. A key word for cooperation is the creation of trust. The issue is, though, how to begin to establish trust when the objectives and interests of states are different. Another key word is transparency. States need to know how far other states are willing or are able to go. States must know the objectives and interests of other countries that are often different from their own. This is particularly true in the Scheldt district given the different population density and different priorities for each of the "hydrological states."

2. International River Basin District Management

In order to develop cooperation and trust among states, one needs to provide incentives, especially economic incentives, or establish European Union/international obligations that states would have to comply with. Cooperation in the region started with the Convention on the Protection and Use of Transboundary Watercourses and International Lakes adopted in Helsinki in 1992 (Helsinki Convention). This was a minimalist treaty that addressed the quality of waters. The Water Framework Directive has been a sort of revolution for the Scheldt countries. The WFD creates new countries, the districts with hydrological borders that are often different from administrative borders. The idea behind the WFD is to coordinate the different aspects of water management in each district and, thus, enable closer cooperation. The Water Framework Directive, though, at the same time, contains antinomies that are not easily resolvable. For instance, each member state is to report nationally to the European Union and not at the district level. Therefore, the implementation is national before it is by district. This is especially challenging when the district in only three percent of the national surface. Often states perceive international cooperation as a risk since it slows down national implementation given that countries have to be consistent with other countries. Developing consistency among states (for instance in methodologies and monitoring systems) is often time consuming as countries often are used to their own way of doing things.

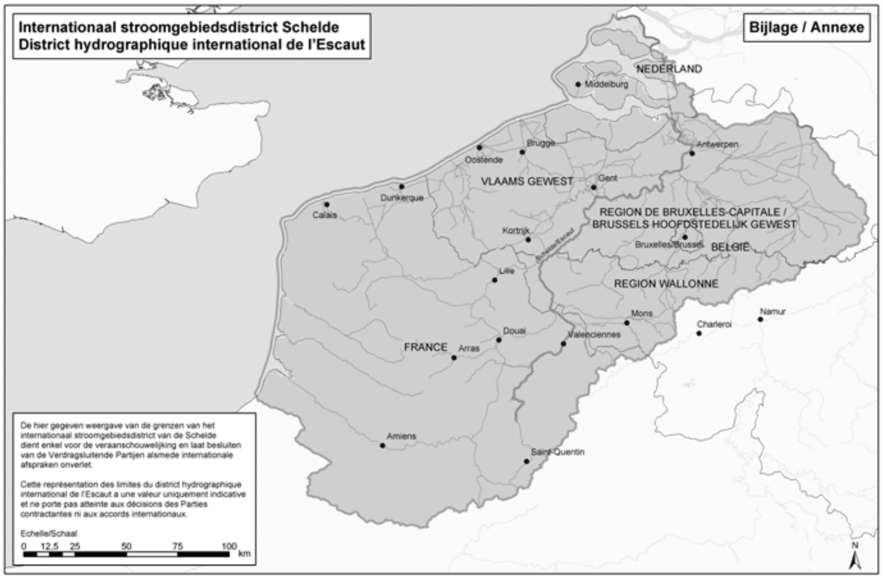
For centuries the Scheldt was a place of conflict and cooperation efforts failed till 1994. The implementation of the first treaty allowed the parties to meet with one another, after a long period of conflict, ignorance and competitiveness. Eventually, the countries understood that a long-term, dynamic cooperation was necessary to achieve success. A permanent and neutral secretariat was absolutely needed to achieve this purpose. The first treaty that was adopted started to operate just after its signature, even if it was not yet ratified by the parties. Two ministerial conferences took place within the first three years. This political involvement was vital in generating trust among the parties. The 1994 Charlesville-Mézières treaty for the protection of the Scheldt took into account the new political structure of Belgium having, for the first time in modern Europe, an agreement with five equal parties, two countries (France and the Netherlands) and three regions namely the Walloon, the Flemish and the Brussels-Capital regions. Every parliament of each region and state had to ratify the treaty.

To maintain trust, however, which is a key to good cooperation, one must not hesitate to change the legal framework even if such change is time-consuming. After the treaty of Charlesville-Mézières, a second treaty was quickly required. The International Treaty for the Scheldt was adopted on December 3rd, 2002. This treaty implements the WFD but it goes even further. It addresses the impacts of floods and droughts and requires the establishment of a homogeneous monitoring system as well as a warning system for accidental pollution (these systems were launched before the adoption of the treaty).

The treaty has encouraged the parties to coordinate their activities by setting common rules, references and objectives. The treaty is necessary in order to put together in an integrated fashion the water management of the Scheldt River. Coordination, however, is not an easy task. For instance, the programs of measures must be coordinated among states at the international level. At the same time the programs of measures must be applied locally. International coordination, therefore, may conflict with local implementation and the principle of subsdiarity. Coordination of the treaty is left upon the International Scheldt Commission.

The new treaty that was adopted in 2002 creates the international district of the Scheldt about two times larger than its river basin and charges the International Scheldt Commission with the coordination of the WFD implementation in the district. With the creation of the new district a new notion is coming into play — that of "new countries." One today can see the "country of the Scheldt" with hydrographic borders where the administrative borders have been omitted (Figure 12). The purpose of these hydrographic borders is to serve the function of water. This is quite a revolutionary concept for the European reality.

Figure 12: The International District of the Scheldt



The International District of the Scheldt: **a new country?**

Internationaal stroomgebiedsdistrict Schelde
District hydrographique international de l'Escaut

Bijlage / Annexe

De hier gegeven weergave van de grenzen van het internationaal stroomgebiedsdistrict van de Schelde dient enkel voor de veraanschouwelijking en laat besluiten van de Verdragsluitende Partijen alsmede internationale afspraken onverlet.

Cette représentation des limites du district hydrographique international de l'Escaut a une valeur uniquement indicative et ne porte pas atteinte aux décisions des Parties contractantes ni aux accords internationaux.

3. Organizational Structure

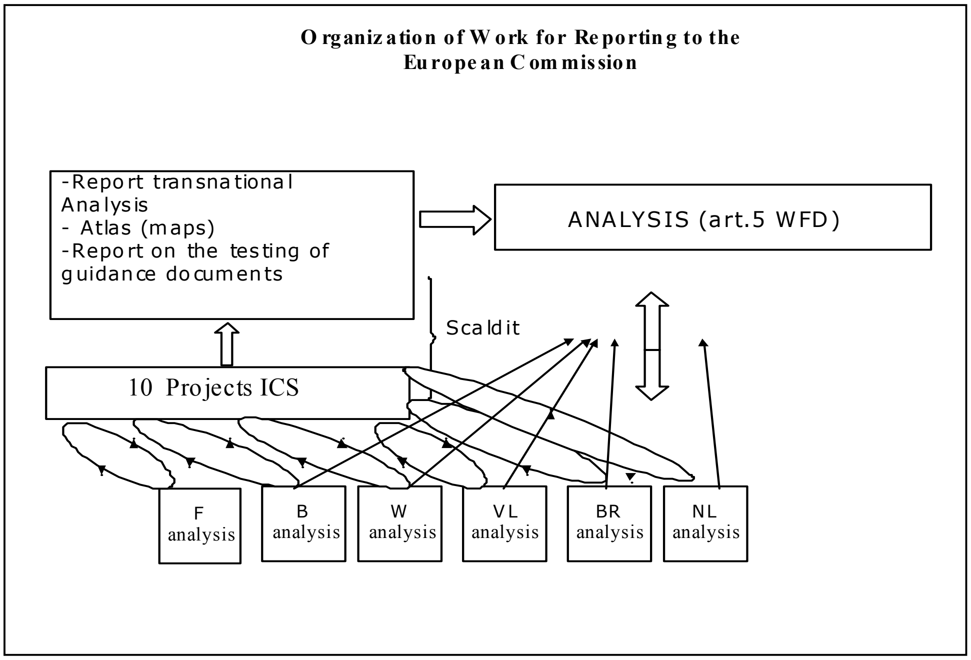
The lack of administrative borders, though, does not mean that cooperation is always easy. Every state party has a different agenda and it is not always easy for the parties to reach agreement on a common work plan. The question that must be answered is what this new international organization of the Scheldt Commission must bring to the table to add value to the process of cooperation. The International Scheldt Commission must be viewed as a management tool, a permanent and neutral network that facilitates the implementation of the WFD including the achievement of technical objectives, such as the harmonization of methodology, the coherence of data and the development of common databases and maps.

With regard to the organization of the work of the International Scheldt Commission for the period between 2005 and 2009, the working groups that have been established are vertical but this does not prevent them from working together. Working groups that have been established concentrate on various issues such as communication and public participation, the status of surface waters, groundwater and coastal water, the analysis of cost-effectiveness of measures taken and the management of floods and droughts. It is worth noting also that workshops are executed on accidental pollution and on increasing the attractiveness of the image of the International Scheldt Commission.

With regard to public participation, it must be mentioned that NGOs are welcomed to participate in all technical working groups as observers and they have also access to the Scheldt Commission intranet designed specifically for members. However, NGOs are not members of the coordination group that is comprised of the heads of delegations. This is because the coordination group needs to make decisions without being subject to pressure by external interests.

The International Scheldt Commission works in a cyclical/iterative fashion (see Figure 13). The country delegations that come to the commission bring their data, ideas and experience to the table and return to their countries with the ideas and experience of others. Eventually they have to modify their approach and come back. What will come out of this exchange is an international river basin management plan for the district of the Scheldt based on six pillar plans developed by the regional and national states. The outcome of this work will be an integrated product that will synthesize all the industrial, urban and agricultural pressures and would allow state parties to acquire a more coherent and comprehensive vision of the problems of the region.

Figure 13: Organization for Reporting to the European Commission


Organization of Work for Reporting to the European Commission
-Report transnational Analysis
- Atlas (maps)
-Report on the testing of guidance documents
ANALYSIS (art.5 WFD)
Scaldit
10 Projects ICS
F analysis
B analysis
W analysis
VL analysis
BR analysis
NL analysis

4. Conclusions

It certainly takes more time and resources to work internationally. The different countries have different languages and culture and have many differences in approach and ambition. Two levels of cooperation are necessary: internally with the regional/national state and among state parties. The International Scheldt Commission constitutes the political basis of decisionmaking and this decisionmaking is often difficult. The data collection and interpretation ability of state parties often differ. The comparability of data collected using different methodologies is often an issue. Countries have different agendas that are often difficult to put together.

Despite these difficulties one has to recognize the added value brought by the international commission that has largely to do with the development of economies of scale and objectivity. The international agreement provides a solid basis for future work. It opens the door for further cooperation and treaty making (environmental and transport treaties). Furthermore, the data and results that are obtained by individual state parties are often double-checked, and this double control is bound to bring more objectivity to the final results achieved. Furthermore, one could claim that the work in the commission is in constant evolution based on the experiences and the need to develop compatibility among the methods based on the cyclical/iterative process analyzed above. This added value brought by work of the international commission constitutes a key element for an integrated water policy.

The International Sava Commission: Future Challenges and Opportunities

Željko Ostojić

1. The Sava River Basin Initiative

The Sava River Basin Initiative was launched in May 2001 through the Stability Pact for South Eastern Europe. The Letter of Intent on cooperation in the Sava River basin was signed on November 29, 2001. This was followed by negotiations on the development of a Framework Agreement on the Sava River Basin (FASRB). The FASRB was signed in Kranjska Gora (Slovenia) on December 3, 2002. After the agreement was signed, the Interim Commission for the Sava River basin was established and was active until the entry into force of the agreement. The task of the interim commission was to prepare the necessary documents for the establishment and work of the International Commission for the Sava River Basin (ICSRB) and its secretariat. Technical assistance for the work of the interim commission was provided by the Regional Environmental Centre for Central and Eastern Europe (REC), Country Office Bosnia and Herzegovina.

The ICSRB was established on September 27, 2005 with a seat in Zagreb. On January 9, 2006 the Sava Commission Secretariat was already in place. The secretariat consists of eight members:
--the secretary;
--three deputy secretaries (for issues of integrated water management, protection of water and aquatic ecosystems, and navigation);
--two special advisors (for legal and economic issues); and
--two advisors (for technical and safety issues in navigation).

The goals of the framework agreement on the Sava River Basin are the following:

- Establishment of an international navigation regime on the Sava River and its tributaries;
- Pursuit of sustainable management of water resources; and
- Adoption of measures in cases of extraordinary or sudden changes in the Sava water regime.

The agreement also includes the following general cooperation principles:

- Sovereign equality, territorial integrity and the implementation of the Water Framework Directive;
- Exchange of data and information;
- Cooperation with international organizations (ICPDR, Danube Commission, UN/ECE);
- Cooperation with European institutions; and
- Cooperation with national institutions.

In order to implement the agreement, a draft strategy for the FASRB implementation has been developed, encompassing the following priority elements of water management:

--Water management in the Sava River basin, according to the WFD requirements (all key elements for the preparation of the Sava RBMP are developed, along with a proposal that covers the current period till the year 2009);
--Identification and regulation of transboundary impacts on the Sava River (including development of a special protocol, definition of criteria for transboundary impacts and implementation of relevant international legislation and conventions);
--Protection from accidental pollution and floods (agreement on procedures and measures in case of accidental water pollution and floods);
--Information management;
--Sustainable water management (related, in particular, to the analysis of water uses of common interest and to the ecological and socio-economic factors in sustainable use as well as to potential conflicts of interest among users);
--Sustainable protection from adverse effects of water (including analysis of existing planning documents for protection from adverse effects of water, monitoring, and cost-sharing for maintenance of structures to prevent the adverse effects of water); and
--Specific issues related to areas that are still mined.

Realization of the above elements of the FASRB requires the following:

- Good organization of the functions of the ICSRB secretariat;
- Preparation of an implementation strategy through numerous projects for which the support of international institutions is expected;
- Education and strengthening of the ICSRB secretariat and the inclusion of experts involved in water management;
- Preparation of additional protocols to the FASRB; and
- Establishment of permanent expert groups to assist in the work of the ICSRB secretariat.

All the above factors would provide a promising foundation for the successful work of the ICSRB in the future, and for the achievement of tasks set in the FASRB. The realization of the goals of the FASRB should result in increased economic growth in the Sava River basin areas and in the successful integration of the Sava initiative into the EU framework for water policy. Furthermore, the successful implementation of the FASRB could lead in the improvement of water management for the benefit of all stakeholders.

2. Water Status of the Sava River Basin in Croatia

The source of the Sava River is near Kranjska Gora in Slovenia and its confluence with the Danube River is located in Belgrade. The Sava River flows through Croatia and Bosnia and Herzegovina. Croatia is located between the Danube River region (in the north) and the Adriatic Sea (in the south), a total surface of 87 609 km^2 out of which 56 538 km^2 consist of land areas and 31 071 km^2 cover coastal areas. The river basins cover approximately 60 percent of land surface, 43 percent of which belongs to the Sava River basin (approximately 24 300 km^2).

Many watercourses in the Sava River basin that pass through the Croatian territory have transboundary significance. Several watercourses flow into Croatia from neighboring countries. The Sava, Drava, Mura, Kupa and Sutla watercourses flow into Croatia from

Slovenia. The Una, Bosna, Vrbas, Ukrina and Tinja watercourses flow to Croatia from Bosnia and Herzegovina. Characteristics of most important watercourses in the Sava River basin in Croatia are presented in the table below (Table 3).

Table 3: Characteristics of Watercourses in Croatia

Watercourse	Sub-basin in Croatia (km^2)	Length in Croatia (km^2)	Gauging stations	Q_{min} (m^3/s)	Q_{mean} (m^3/s)	Q_{max} (m^3/s)
Sava	25,770	510	Županja	226	1,134	4,130
Sutla	133	89	Zelenjak	0.342	7.31	250
Krapina	1,244	65	Kupljen.	0.2	12	368
Česma	2,890	96	Čazma	0.066	14.1	153
Ilova and Pakra	1,816	96	V. Vukovje	0.13	6.99	151
Orljava	1,616	97	Pleternica	0.111	5.12	117
Bosut	2,375	81		NA	12.2	NA
Kupa	8,412	294	Farkašić	16.9	201	1,776
Dobra	1,354	104	Stative D	1.65	34.8	372
Korana	2,049	134	Velemerić	0.611	28.8	492
Mrežnica	980	63	Mrzlo Polje	0.223	26.6	375
Glina	967	100	Glina	0.939	18.2	350

Systematic monitoring of surface water quality in Croatia has been conducted since the early 1970s within the framework of national monitoring program that was first established for the Sava River basin. According to national regulations, water quality is evaluated for various parameters including the oxygen regime, nutrients, microbiological and biological parameters. Based on the parameters that are used for the evaluation of water quality, water is classified into five categories. More specifically, monitoring on the frontiers with Slovenia and Serbia and Montenegro has revealed the following with regard to water quality (see Table 4).

Table 4: Water Quality Classification in Croatia

Monitoring station	Jesenice/D	Gunja
Oxygen regime	III	III
Nutrients	III	III
Microbiological	IV	IV
Biological	II	II
Water classification	II	II

Overall, it could be claimed that water quality in the Sava River basin is compromised due to microbiological pollution. Water quality with regard to biological parameters is satisfactory.

With regard to groundwater, estimates of renewable groundwater resources in the Sava River basin include estimates for both alluvial aquifers and carbonate aquifers as analyzed below:

Alluvial aquifers	1 198.3 x10^6 m^3/year
Carbonate aquifers	653.8 x10^6 m^3/year
Sava River basin - TOTAL:	1 852.1 x10^6 m^3/year

With regard to groundwater quality, in the Pannonian area of the Sava River basin, groundwater is of very high quality. However, many aquifers along the Sava River and its major tributaries are polluted. Most of the pollution originates from multiple diffuse sources and, more specifically, from inadequate wastewater treatment.

3. Water Management in the Sava River Basin in the Republic of Croatia

Several water management issues, that have to do with water quality and quantity, affect most of the co-riparians of the Sava River basin including Croatia.

Protection against the damages caused by floods is still a major concern in the region. With regard to Croatia the only city that is adequately protected against floods is the city of Zagreb. Other settlements that are located along the Sava River are insufficiently protected. The size of improvement of the drainage area in the Sava River basin is approximately 955 334 ha. The construction needed for surface drainage, however, is only about 30 percent complete, including thirty-nine pumping stations with the capacity of 168 m^3/s. In addition to the areas that are prone to floods and are insufficiently protected in Croatia, significant areas in Serbia and Montenegro and Bosnia and Herzegovina need protection against flooding.

The public water supply system in the Sava River basin covers about 55 percent of the population. The average water consumption for households is 138 liters per inhabitant per day (ranging from 113 liters per inhabitant per day to 149 liters per inhabitant per day). Similar problems with adequate and evenly distributed water supply are present in Serbia and Montenegro and in Bosnia & Herzegovina. Water use for power generation in the Sava River basin is taking place only in Slovenia and this is included in the current water use plans of the city of Zagreb. The quality of water for the purposes of irrigation is mostly satisfactory but irrigation does not consume large quantities of water.

Water use for fish farming has significantly decreased due to war-related destruction of major fish farms in the Sava River basin. In the period between 1980 and 1989, the fish-farming production was up to 15 000 t/year, while in 2003 it was about 3 500 t/ year. The navigable waterway of the Sava River (376 km) has been declared an international navigable waterway. However, there are still numerous problems of technical and safety nature.

Water pollution from point and non-point sources is significant and affects the water status. This has to do, in particular, with the urban sources of pollution. In the Sava River basin, about 46 percent of the population is connected to public wastewater collection systems but only five percent of urban wastewater is treated. The percentage of treated wastewater has increased significantly since the construction of Wastewater Treatment Plants (WWTPs) in Zagreb and Ljubljana. The cities of Zagreb and Ljubljana are the main culprits of pollution in the Sava River basin. Furthermore, it is important to conserve the protected areas in the Sava River basin. The Nature Protection Act adopted in Croatia has declared many types of protected areas.

4. Conclusion

Water management in Croatia, and in other riparian countries in the Sava River basin, indicates the necessity of formulating a strategy that ensures the satisfaction of all stakeholders with an interest in water management. Taking this into consideration, the main tasks of the Sava Commission will be to ensure coordination on vital issues and to prepare proposals on a variety of topics.

More specifically coordination will be executed with regard to the:
--preparation of an integrated water management plan for the Sava River basin;
--establishment of an integrated information system;
--preparation of studies; and
--activities related to water use, protection of water quality and aquatic ecosystems and protection against the adverse effects of water.

The Sava Commission should prepare proposals also on:
--a water management plan for the Sava River basin;
--priority projects;
--binding decisions relating to the provision of safety conditions for navigation on the Sava River and its tributaries;
--cooperation with international and national organizations;
--coordination of documents and publications; and
--legal acts in the field of integrated water management.

The FASRB Implementation Strategy should assist, in the short-term, in the transposition of water management standards as mandated by the European Union, particularly those contained in the WFD. The strategy should, thus, facilitate socio-economic development in the entire Sava River basin.

The activities initiated after the signature of the FASRB have targeted the resolution of navigation issues and should contribute to the economic development of the Sava region. The problems that arose at the very beginning, when the ICSRB and its secretariat was established, had to do with the lack of more substantial international assistance, both financial and material, for the functioning of the Sava secretariat. Such assistance had been promised at the time when the Interim Sava Commission had been established. Eventually assistance was provided solely by the REC and the United States government. Furthermore, state parties to the FASRB did not readily fulfill their financial obligations under the agreement, and, thus, they jeopardized both the functioning of the secretariat and other activities executed by the ICSRB.

A meeting of state parties that was to take place by the end of 2005 is now scheduled to happen in January 2007 in Croatia. The meeting will provide an opportunity to address all issues that emerged since the signing of the FASRB. The meeting will be attended by the ministries of foreign affaires of state parties as well as by the ministries that are in charge of the implementation of the FASRB.

Cooperation in the Tisza River Basin and the Future of Bilateralism in Water Management

Kálmán Papp

1. Foreword

Humans and rivers are connected throughout history all over the globe. This is the case with the Tisza River that is the longest tributary of the Danube. Its longitude is 962 km. The area of the basin is roughly 157 000 km² and it is shared by five countries: Ukraine, Hungary, Slovakia, Romania, and Serbia and Montenegro. This fact in itself demonstrates the importance of international cooperation for the management of the river.

The blond Tisza, as it is named in Hungary, is a very capricious river. The discrepancy between the lowest and highest water level is 8-10 meters. The biggest water volume is roughly 50 times bigger than the smallest volume of the river. These discrepancies demonstrate that flood management is an important issue for the management of the Tisza River.

A poem by Sándor Petőfi written about the Tisza beautifully describes a summer twilight when he was standing by the meandering river very near to the confluence of a small tributary. The poet writes: "the river flowed down smoothly and very silent." Some days later he was awaken by the ring of the bells and he could see a sea, instead of a river, when he looked out from his house.

Petőfi finishes the poem with the following picture:

"Like a mad who throw away his chains
Run the river across the plains
Crying, moaning broke its way through the dyke
And wanted to gulp the world wide."

The question, therefore, is how people can protect themselves from the damages caused potentially by rivers such as those caused by floods. The answer is simple: only through cooperation.

A first level of cooperation was achieved at the national level. To protect themselves against the floods caused by the river the Hungarian landowners started to regulate the river in the mid-19th century. The regulatory work was initiated by Count István Széchenyi. The civil engineering works were co coordinated by Pál Vásárhelyi. After the completion of engineering works the longitude of the river was diminished from 1419 km to 962 km. In connection with the regulation and drainage works, the first water associations were created in Hungary uniting landowners depending on the river. Thus, Hungary followed the model of the Netherlands in the sphere of organization of water management activities.

Protection against the damages caused by the river was not the only management activity undertaken. Many fishers, at the time, used the so-called notch system or tidal farming along the river. Thus protection against flood went along with farming activities exhibiting patterns of cooperative interaction between humans and nature.

Since water does not recognize borders cooperation is important not only at the national level but also at the international level. The history of international cooperation in the Tisza basin coincides with the cooperation in the Danube River basin.

2. International Cooperation after World War I

The multilateral and bilateral cooperation agreements in the Danube basin, and subsequently in the sub-basin of the Tisza River, have their roots in the activities of the Commission de Regime des Eaux du Danube (CRED) which was created after World War I by the Trianon Treaty. The CRED initiated the first bilateral transboundary water agreements between interested parties.

The CRED initiative launched the following bilateral agreements on water management:

--the Hungarian-Austrian Water Agreement (1923);
--the Hungarian-Romanian Water Agreement (1924); and
--the Hungarian-Czechoslovakian Water Agreement (1937).

In order to address the water management problems of the Transcarpathian Region a trilateral (Czechoslovak-Hungarian-Romanian) commission was created. Thus, the Hungarian-Czechoslovakian Commission, the Hungarian-Romanian Commission along with the Transcarpathian Commission provided the first framework for international cooperation. These commissions focused on flood protection and the works executed by water associations in the transboundary region.

3. Bilateral Developments after World War II

After World War II the situation changed because of the new political circumstances. The Paris Treaty legally annulled the CRED without initiating a new multilateral body. With regard to the bilateral relationships, after a transitional period, new transboundary water agreements were concluded between the neighboring countries. In the Tisza basin, bilateral agreements were concluded between the following countries:

- Hungary-Soviet Union,
- Hungary-Romania,
- Hungary-Czechoslovakia,
- Hungary-Yugoslavia,
- Romania-Yugoslavia,
- Romania-Soviet Union,
- Czechoslovakia-Soviet Union.

These seven bilateral agreements practically mean that seven bilateral water commissions have dealt with transboundary issues in the Tisza basin since the 1950s. The following remarks are based on the Hungarian practice, but one may assume that similar type of competencies and activities existed in the other countries' bilateral relationships.

4. Structure of Frontier Water Commissions after World War II

The bilateral commissions established for the management of the Tisza River after World War II were built up by subcommissions or working groups. Subcommissions were created either based on the catchment principle (like the Tisza Subcommission with Czechoslovakia and later with Slovakia and with Yugoslavia) or based on technical and administrative principles (like water management subcommissions, the hydrometeorological subcommission with Soviet Union and Romania, and the financing subcommission with Czechoslovakia - later with Slovakia).

Each of these bilateral commissions performed regular water level and volume measurements in agreed cross-sections of the transboundary river. State parties to the commissions checked yearly the state of the dykes and the hydrotechnical constructions in the frontier region in which they had mutual interest. The contracting parties had to agree on the development plans and technical plans. In some commissions, parties evaluated the costs of undertaking infrastructure activities using the so-called agreed equivalents — these equivalents were nominal comparable values of different works undertaken by the contracting parties. Apart from these agreed costs, the parties were to finance themselves construction activities occurring within their territory.

The quantity of water available in transboundary rivers has been a debated topic in transboundary commissions. Water resources are usually shared equally (fifty-fifty) between the contracting parties. However, it is often not clear what the quantity of water is that is supposed to be divided equitably. Furthermore, it is important to agree on the quality of water that is to be made available. This gave the impetus to establish water quality subcommissions as early as in the 1960s. Water quality subcommissions are comprised of experts who execute measurements with the goal to achieve a common evaluation of water quality data. Water quality measurements are becoming more frequent in transboundary water management cooperation. Besides the chemical parameters, the bacteriological parameters are also measured. In some commissions, experts have started to forecast the future trends of water quality in the transboundary watercourses.

5. The Beginning of Multilateral Cooperation in the Tisza Basin

Since the 1970s and 1980s, besides bilateral transboundary cooperation, multilateral cooperation in the Tisza basin has been developing. To ensure historical authenticity, one has to mention that multilateral cooperation existed already within the framework of COMECON. Under the auspices of water management leaders conferences, a special working group dealt with the water management problems of the Tisza River addressing various topics. Such topics included, for instance, water resources management, flood protection and water pollution control. Furthermore, a master plan was prepared for the Tisza River. The use of these earlier documents and studies is hampered, though, since they were drafted primarily in Russian and then, possibly, translated into other national languages.

The importance of water quality protection was articulated in the first multilateral convention that directly focused on the Tisza River. In 1986 a multilateral convention[3] was adopted in Szeged (Hungary) by the five riparian countries to protect water quality of the Tisza River.

6. Changes in International Cooperation after 1990

6.1. New Bilateral Agreements

With changes in the political and social landscape of the early 1990s, international cooperation had to accommodate the new developments and new countries that sprung in the region, such as Slovakia and Ukraine. Some of the bilateral agreements that had been signed in earlier years had to be modified.

In 1994 Slovakia and Ukraine signed an agreement on water management of transboundary watercourses. In 1993 and in 1997 Hungary and Ukraine concluded new transboundary agreements. The 1993 agreement was merely a substitution of the earlier Hungarian-Soviet agreement. This agreement was replaced four years later with a new agreement that established a new model of cooperation. In 1997 Romania and Ukraine also concluded an agreement in the field of water management of transboundary watercourses. The new agreements that have been signed in the region refer to the principles of the Convention on Protection and Use of Transboundary Watercourses and International Lakes (Helsinki Convention). One could claim that most bilateral transboundary agreements with regard to the Tisza basin were renewed in the early 1990s with the exception of agreements signed with Yugoslavia (today Serbia and Montenegro).

6.2. The Tisza Water Forum

After the turn of the century new challenges have emerged. These challenges include: pollution caused by outdated industrial and mining technologies, the increasing severity and number of floods, deforestation and the loss of biodiversity. All these threats are interrelated, have impacts on many sectors of the national economy and affect the nature of transboundary relationships among countries. Because of the nature of issues involved, it has been realized that the earlier bilateral tools have not been adequate for addressing the problems presented in the Tisza basin and that multilateral cooperation efforts have to be initiated.

In 2000, the cyanide and heavy metal pollution of the Tisza River and its tributaries made necessary the control of industrial, mining and agricultural activities. Some of the so-called ‘hot spots’ of pollution were identified and listed for the whole Danube basin and, simultaneously, for the Tisza sub-basin. An environmental protection program for the whole Tisza basin was initiated in 2001 by the Hungarian Ministry of Environment. The program established common monitoring, public participation, the reduction of transboundary pollution, the development of forecasting for pollution control purposes and capacity building.

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[3] Convention on Measures to Combat Pollution of the Tisza River and its Tributaries.

Furthermore, taking into account the consequences of heavy floods of the late 1990s, the ministers of the five co-riparian countries signed the Budapest Declaration on May 25, 2001. The Budapest Declaration defined joint actions that are necessary to reduce the danger caused by the floods of the Tisza River. According to the Budapest Declaration, parties elaborated the 'Tisza River Basin Flood Control Concept' focusing on the following key tasks:

a) evaluation of the present situation with regard to flood prevention;
b) actions aimed at increasing the lead-time available for preparedness against future flooding;
c) determination of the design floods as the criteria of planning emergency measures; and
d) determination of the potential flood control improvement measures.

Eight working (expert) groups have been formed that are guided by national coordinators nominated by the ministries of the co-riparian countries. The working groups are as follows:

WG I. National characteristics of the Tisza River Basin (led by Serbia);
WG II. Description of flood control situation by countries (led by Romania);
WG III. Increase of lead-time available for preparation (led by Hungary);
WG IV. Definition of the design flood levels (led by Slovakia);
WG V. Implementation of the necessary measures (led by Ukraine);
WG VI. Environmental impact assessment (led by Slovakia);
WG VII. International cooperation, legal framework (led by Hungary);
WG VIII. Integrating the outputs (led by Romania).

During the ministerial meetings, the Tisza Forum has reviewed the current national flood control policies. Parties have engaged in regular exchange of information and have proceeded to harmonize the national flood control methods and to identify common flood control and flood emergency measures.

The Tisza River Basin Flood Control Concept was adopted in 2002 at the ministerial meeting of the co-riparian countries. For the implementation of the Tisza River Basin Flood Control Concept, the national coordinators submitted a harmonized Working Program. Since 2004, however, the activity of the Tisza Water Forum has come to a standstill mainly due to problems of financing.

In its active period, between 2001 and 2004, the Tisza Forum developed relationships with the EU, the ICPDR and the CEMAT. The purpose of these reach-out activities was to improve the cooperation with other international organizations interested in the development of flood protection measures for the Tisza basin. These contacts became important as other international institutions were involved in coordinating activities in the Tisza basin.

6.3. International Organizations Involved in the Tisza Basin

The International Commission for the Protection of the Danube River (ICPDR) is involved in coordinating management efforts for the whole Danube River, and consequently for the Tisza basin. Some of the activities in which the ICPDR is involved include: the Danube Regional Project, river basin management and the implementation of the WFD for the whole basin, the flood action program, emissions monitoring, accident prevention and emergency preparedness.

These activities in which the ICDPR is engaged provide useful information for the Tisza River basin as well. However, it is recognized that important tributaries of the Danube River, such as the Tisza River, must be treated independently from the point of view of international cooperation.

An integrated sustainable development program for the Tisza basin was put forward in the period between 1999 and 2002 and was supported by projects conducted by the UNDP, the UNEP, the WWF, Wetland International and the GEF. These projects provided detailed information and preparatory assistance for integrated disaster preparedness and background data and recommendations for a common policy. The Tisza River Basin Integrated Sustainable Development Program in its initiation phase promoted extensive networking to reach key stakeholders in the basin. The program formulated priority activities for sustainable development. The importance of integrating water and flood management with agriculture, land use and other sectors of the economy was also enunciated in some projects.

In November 2003, the FAO Subregional Office for Central and Eastern Europe organized a Seminar on Integrated Water Management in the Tisza River Basin. This was the first international event where detailed exchange of information was provided on recent, ongoing and future policies, programs and projects concerning water management in the Tisza River basin. During the seminar it was suggested that the Tisza Water Forum should acquire a more prominent role and should develop a larger interdisciplinary mandate. It is interesting to note that, instead of realizing a larger role for itself, the Tisza Water Forum ceased its activities only within a year after the completion of the FAO seminar.

After the turn of the millennium, many international projects contributed to underline the importance of coordinated action for the development of international cooperation in the Tisza basin. Hungary, in a position paper, welcomed the initiative to execute an integrative approach to develop the Tisza River basin cooperation. In line with the relevant EU policies and the provisions of the Danube Protection Convention it was suggested to develop:

- coordinated river basin management planning;
- harmonized flood management;
- measures for protection and sustainable use of water resources;
- measures for reduction of environmental risks, prevention of transboundary pollution, increase of environmental safety; and

- measures to ensure quality of life for all people living in the large region of the Tisza River basin.

Another important step in multilateral cooperation was accomplished with the adoption of a Memorandum of Understanding (MoU) by the Tisza countries on the occasion of the first ministerial meeting of the ICPDR held in Vienna on December 13, 2004. For the implementation of the MoU, an Expert Body of the ICPDR, the *Ad hoc* Tisza Group, has been established and is already operating. The *Ad hoc* Tisza Group must ensure coordination and harmonization of its activities and resources with the UNDP/GEF Tisza projects and the Tisza Water Forum.

7. The Water Framework Directive as a Driving Force

The Water Framework Directive of the European Union raised a further challenge for the five riparian countries of the Tisza basin. The goal to achieve good ecological status of transboundary rivers by the year 2015 is obligatory for the member countries. Furthermore, EU member countries have to strive to agree on the river basin management plans for the transboundary basins with neighboring countries.

Out of the five Tisza countries, Hungary, Romania and Slovakia are already members of the EU. This means that three out of the five riparian countries of the Tisza River basin will have to fulfill the prescriptions of the Water Framework Directive. It is also quite important that states, which are not part of the European Union, have declared that they are willing to apply the Water Framework Directive.

Hungary has already initiated discussions with all neighboring countries, including the Tisza basin countries, with regard to the implementation of the Water Framework Directive. For these discussions special working groups have been created. These working groups are usually coordinated by the water director of the Ministry of Environment and Water. These working groups have contacted the bilateral transboundary water commissions and are in full cooperation with them. Another solution for integrating the WFD implementation into the bilateral relationships is for bilateral transboundary water commissions to directly deal with the issue of the WFD implementation or for the commissioners themselves to organize WFD working groups.

Transboundary projects have assisted in the preparations for the implementation of the Water Framework Directive. Such projects include the Hernád/Hornad project and the Körös/Crisuri project. The Hernád/Hornad project had to be implemented with Hungarian-Slovakian cooperation in the Hernád/Hornad tributary of the Danube and it was executed with the assistance of Dutch partners The Körös/Crisuri project was propelled by Hungarian-Romanian cooperation on the shared tributary and it was executed with French financing. Both these projects have provided useful information for the interested partners in preparation for river basin management planning.

It has to be mentioned, however, that projects initiated by a third neutral partner could provide virtual solutions, but cannot substitute the real bilateral planning activities between the interested regional authorities on both sides of a frontier. It is maintained here that it would actually be useful to provide more information on the planning practice of the third partner (the country of the consultant) within the framework of the project.

Another example of international cooperation includes the Hungarian-French Workshop held in November 2005 in Debrecen with the participation of Agence de l' Eaux Loire-Bretagne and seven Hungarian water directorates in the Tisza basin. The workshop examined the actual tasks involved in the implementation of the Water Framework Directive.

8. Developments in Bilateral Cooperation

The bilateral cooperation in the region has been evolving and new bilateral agreements have been signed. The new Hungarian-Romanian Frontier Water Agreement, which was concluded in 2003, has as a goal to protect frontier waters and to encourage their sustainable use. This agreement takes into account the 1992 Helsinki Convention and the 1994 Sofia Convention and directly prescribes specific cooperation activities for the implementation of the Water Framework Directive. This way a comprehensive bilateral legal framework has been provided to execute the EU obligations. Another innovation of the Hungarian-Romanian agreement is that it refers to the polluter pays principle. The agreement provides that representatives of the EU, the ICPDR and the water authorities of the ICPDR member countries may be invited to take part in the sessions of the Hungarian-Romanian Water Commission, after a preliminary agreement of the commissioners of that commission.

The agreed draft of the new Hungarian-Slovakian Frontier Water Agreement refers to the Helsinki Convention, the Sofia Convention, the Water Framework Directive and the polluter pays principle. Moreover, this agreement refers to many other multilateral conventions and agreements related to water management. Such agreements include the Belgrade Convention on Danube navigation (1948), the Ramsar Convention on wetlands (1971), the Espoo Convention on transboundary environmental impact assessment (1991) and the European Agreement on main inland waterways with international importance (Geneva, 1996). These references may help the reinforcement of principles of multilateral conventions in the bilateral context.

The proposed new Hungarian-Slovakian Agreement initiates cooperation on common water basins (catchment areas) and on frontier waters. The new bilateral body that is to be created will be named Hungarian-Slovakian Committee of Common Water Basins and Frontier Waters. It is possible that in this draft agreement the principle of river basin management will be incorporated more fully. The draft Hungarian-Slovakian agreement has yet to be signed.

9. Conclusion

Both bilateral and multilateral cooperation have been used in the Tisza basin. Bilateral agreements and multilateral cooperation are sometimes well coordinated; other times, though, they function separately and even compete with each other. In some periods, bilateralism was stronger. This was the period that started with World War II and ended with the adoption of the 1994 Sofia Convention.

With the establishment of the International Commission for the Protection of Danube River (ICPDR) has started an era of possible multilateralism for the Tisza basin as well. At the turn of the century and, thereafter, an increasing number of multilateral organizations have become interested in the Tisza basin, such the UNEP, the UNDP, the EU, the World Bank and the FAO. The establishment of Tisza Water Forum and the support for sustainable development in the Tisza region within the framework of the ICPDR have launched a period of real multilateralism in the Tisza basin.

The following paragraphs include some of the personal views of the author on the future of bilateral and multilateral cooperation in the Tisza basin.

Based on the Danube Basin Analysis (Roof Report 2004) issued by the ICPDR and the results and reports of the Tisza Water Forum and Tisza Environmental Program, the Tisza River Basin and Flood Risk Management Plan will be ready by 2009. It seems likely that an institution would be suggested to coordinate the activities of the interested partners for the fulfillment of the above-mentioned plan. Probably such an institute could manage research activities, coordinate projects and other mutual development programs but it would not have the ability to finance projects or to perform investments. The financing scheme of the ICPDR could be used as a model for the functioning of such an institute.

A further question that needs to be examined is whether, if financing cannot be achieved multilaterally, it is better to finance such an institute on a bilateral basis. The bilateral financing of the institute will require the further development of transboundary commissions. Such commissions are intergovernmental bodies that organize meetings and sessions to achieve common goals. Bilateral transboundary commissions do not usually have their own financial resources. Commissioners are able to make financial commitments on behalf of their government to effectuate the relevant decisions of a commission. But bilateral commissions do not receive direct financing from independent sources.

In connection with the implementation of the WFD, one option would be to organize transboundary directorates on a bilateral basis or to coordinate more deeply the activities of the neighboring local water directorates. In principle a bi-national water basin directorate could be developed to coordinate the activities of the parties. The deepening of the relationship between neighboring local directorates, though, seems at this point a more feasible option.

Neighboring directorates could establish a bilateral board of directors with alternating presidency. The board of directors should be inclusive of representatives of important stakeholders from both sides of the frontier. In addition to the bilateral board of directors, bilateral inspection boards could be created that would be involved in the inspection of activities of the transboundary directorate(s) taking into consideration the interests of neighboring sides.

It is suggested here that it would be desirable to harmonize as much as possible the administrative structure of cooperating directorates. The sub-units (sections, departments) of neighboring directorates could have the right to cooperate directly and exchange information electronically. It would be important for neighboring directorates to have a common information policy and to provide a proper framework for public participation. A common transboundary directorate or cooperating directorates must have the adequate assets for the execution of common river basin development plans. This is in contrast with the current situation where the directors (and the directorates represented by them) are dependent on the state budget and the competent ministries. The technical execution of the plans (maintenance, construction) could take place with the assistance of contracting partners through an open tender procedure.

It is essential that cooperating directorates, via the board of directors, keep a very close contact with transboundary water commissions that coordinate the bilateral agreement in an area. The presidents or co-presidents of a bilateral board of directors must have an important role within the respective transboundary commission (for instance, the positions of deputy commissioner or head of subcommission). It is encouraging that directors of few neighboring water directorates already have this role in many established bilateral transboundary water commissions.

Presidents of bilateral boards of directors should assume a more active role in the decisions relating to financing works of common interest. This must be achieved in accordance with the principle of subsidiarity. The commissioners would have the role to represent the government and they would preside over the sessions of transboundary commissions as it often happens today. However, local interests, as represented in a bilateral board of directors, could acquire more power in the formulation of financing decisions.

Future water directorates, as envisioned here, could provide a stronger background for the functioning of transboundary commissions. Bilateral institutional development could further provide a better framework for the achievement of goals of the European Union including the free movement of ideas, people and capital.

Implementation of the Water Framework Directive in the Netherlands and Cooperation in the Ems, Meuse, Scheldt and Rhine River Basins

Willem Mak

1. The Structure of National Cooperation for the Implementation of the Water Framework Directive

Water management in the Netherlands has never been an afterthought. It has been a matter of national survival given the fact that about 60 percent of the land will be flooded by the sea without human intervention. Many of the waters in the Netherlands are, therefore, highly modified and regulated.

Water management involves the cooperation among three ministries:

- The Ministry of Transport, Public Works and Water Management (V&W);
- The Ministry of Spatial Planning, Housing and Environment (VROM); and
- The Ministry of Agriculture, Nature and Food Quality (LNV).

The Ministry of Transport, Public Works and Water Management coordinates the activities for the implementation of the Water Framework Directive.

At the regional level there are twelve provincial authorities that are also involved in water management and prepare provincial water management plans. Furthermore, there are 26 waterboards and 467 municipalities that deal with water management. This was the institutional structure for water management when the WFD was adopted. And it has been a well-functioning structure. With the advent of the WFD that mandates that water management is to be executed based on the river basin principle, the question has been how to restructure the water management system to fulfill the requirements of the WFD.

The Dutch water management system has several advantages including:
--a long history of water management;
--well-established authorities;
--knowledge and experience;
--a strong existing planning scheme (though different from the one proposed by the WFD); and
--a potent institutional structure (but not in line with river basin concept).

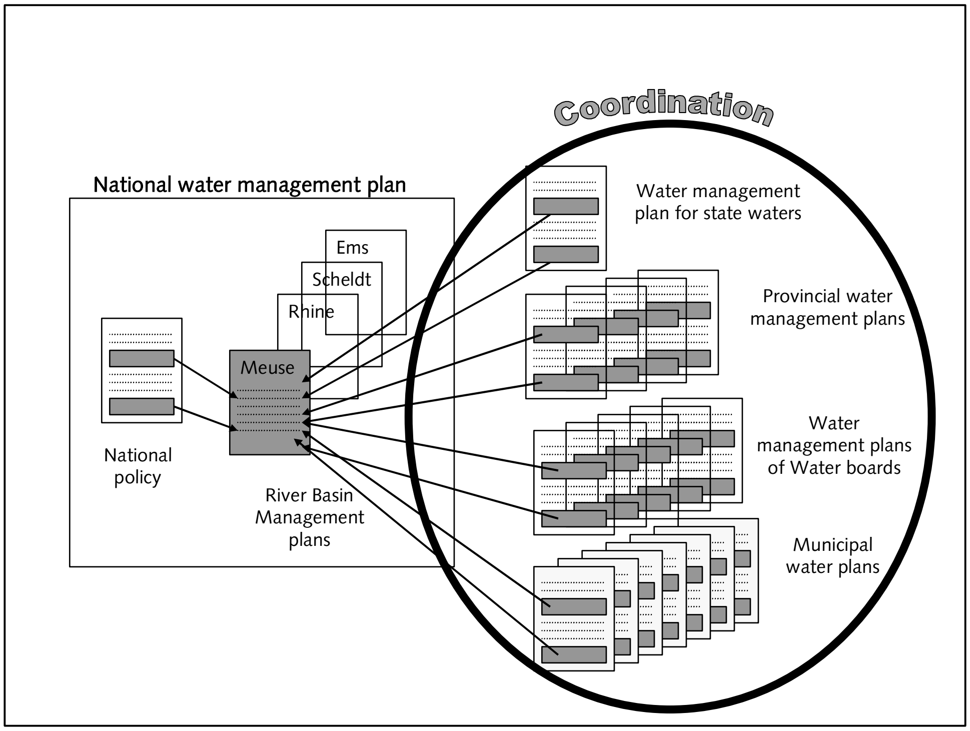
However, these advantages could be considered disadvantages if one wishes to implement something new. In this respect, countries that start afresh with water management, due to the implementation of the WFD, may have an advantage over countries with long-entrenched water management systems and institutions. Given an established water management system, the question for the Netherlands has been to formulate the principles that should govern the implementation of the WFD. It has been decided that such principles should involve:

- Maximum use of existing authorities (no new structure);

- RBMP consisting of building blocks out of new plans in the existing planning scheme;
- Additional coordination structure for sub-river basins;
- Planning process in cycles including vertical and horizontal coordination integrated into the process;
- Strong link between activities in national sub-river basins and international river basin commissions.

With regard to the formulation of river basin management plans it has been decided to adopt the following approach:
--use as a basis the existing national planning scheme;
--develop the RBMPs with building blocks coming out from the national policy on water and the plans formulated by provinces, waterboards and municipalities;
--develop a coordination structure among the various sub-river basins (there are eight such sub-districts in the Netherlands) (see Figure 14).

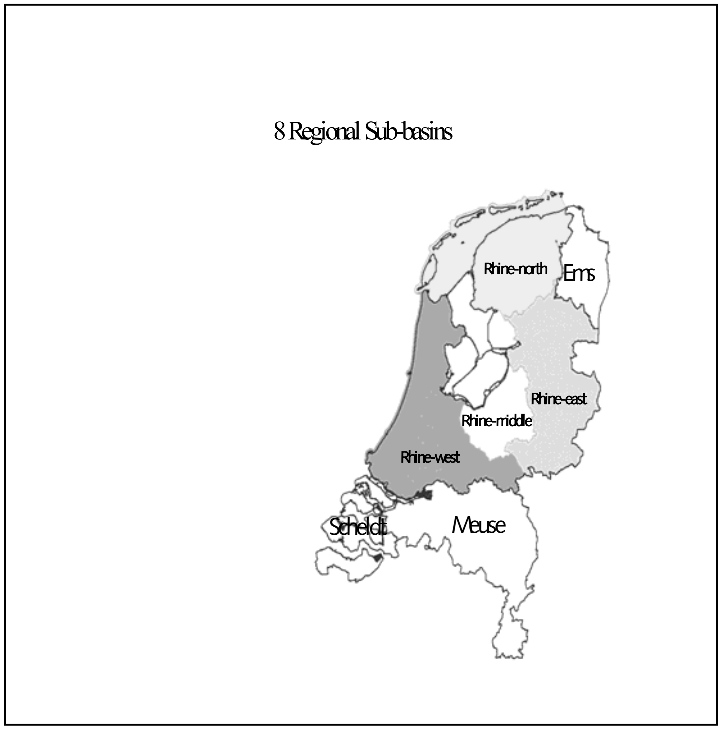
Figure 14: Coordination of River Basin Planning in the Netherlands



Coordination
National water management plan
Ems
Scheldt
Rhine
Meuse
National policy
River Basin Management plans
Water management plan for state waters
Provincial water management plans
Water management plans of Water boards
Municipal water plans

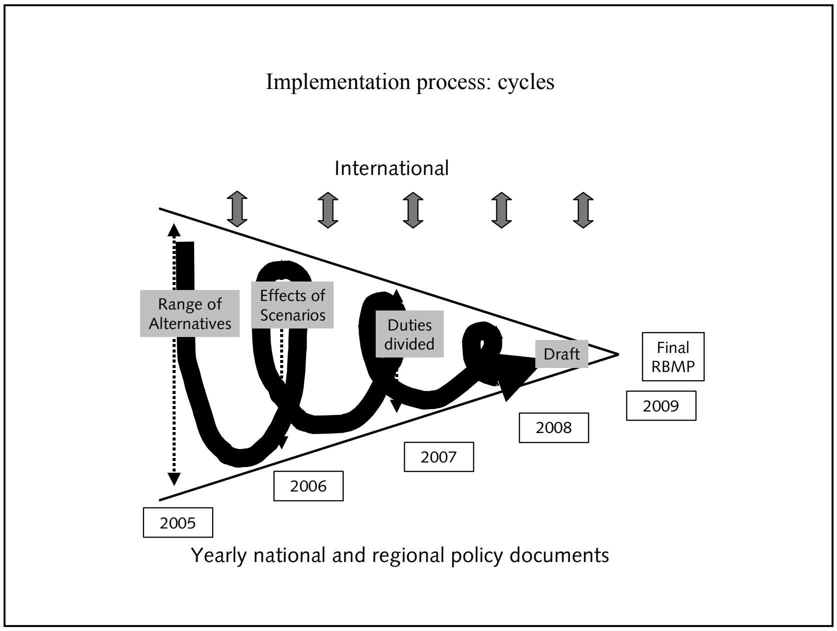
The eight sub-river basins in the Netherlands include: the Meuse, the Scheldt, the Rhine (which is divided into Rhine-west, Rhine-middle, Rhine-east and Rhine-north) and the Ems (Figure 15). The Ems appears to be a single sub-river basin on the map shown below. However, this is not entirely the case since, even today, after fifty years, the borders of the Ems River estuary are contested between the Netherlands and Germany. Therefore, two competent national authorities on each side of the border regulate the Ems River basin. Netherlands has established a special committee that deals with the Ems estuary.

Figure 15: Eight Region Sub-basins



Before the adoption of the WFD, water management in the Netherlands was straightforward. First, the national plan was developed that was followed by provincial plans and the management plans of waterboards. Today, because of the adoption of the WFD, the process has been modified. Now the implementation process involves cycles that start with a wide range of alternatives with the aim to increasingly reduce the number of decisions that need to be made by the end of the process. Every year the Netherlands produces national and regional policy documents. The first such document was prepared in 2005 and another one is being prepared for 2006 (see Figure 16). In 2008 and 2009 the planning will develop into an almost simultaneous multi-level decisionmaking process. Being a unique process for water management in the Netherlands, this will create a major challenge for all parties involved. Until now decisionmaking took place at one level at a time starting at the national level.

Figure 16: The Cyclical Implementation Process

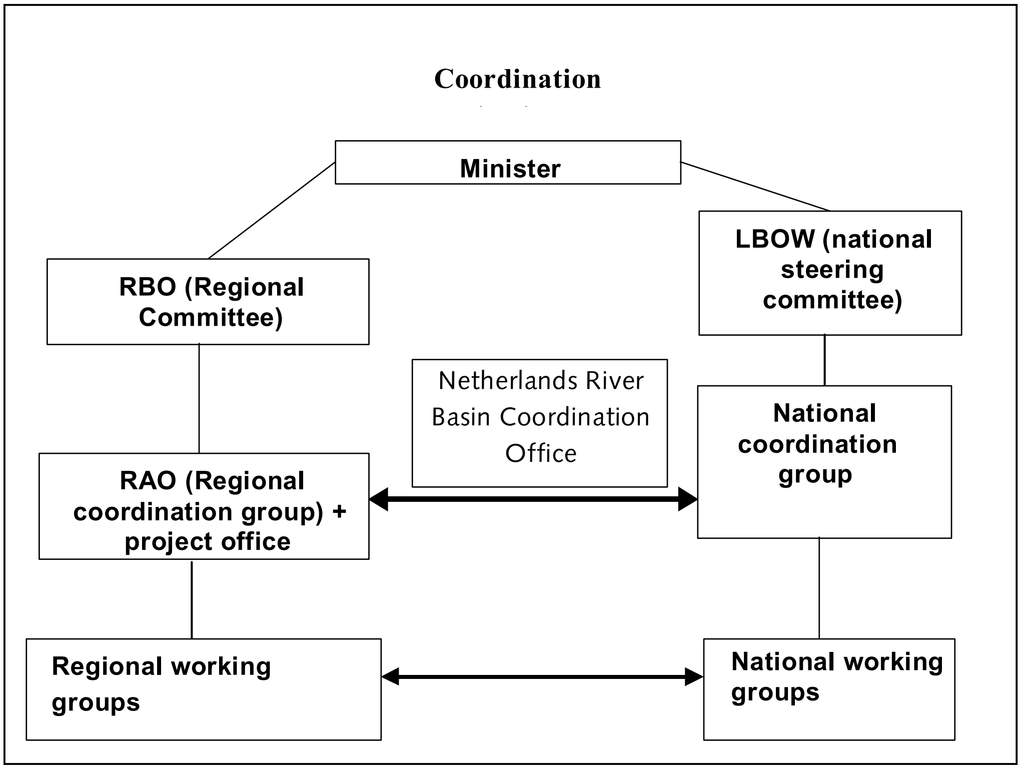


The coordination structure for the implementation of the WFD is provided in Figure 17. On the left side of Figure 17 one can see the regional structure of coordination. This regional structure exists in each of the eight sub-river basins in the Netherlands. The RBO is a high-level committee comprised of high-level officials from the provinces, the waterboards and some of the municipalities. These officials are either directly elected or appointed at the 'political level.' In the RBO there are — depending on the sub-river basin — two to four provincial members and two to eight waterboard members and four to eight members representing the communities. The RAO prepares the RBO meetings. The RAO is comprised of government officials at the 'non-political level' coming from the same organizations that are represented in the RBO. The regional working groups function with stakeholder participation.

On the right side of Figure 17 one could see the national structure of coordination. The LBOW is comprised of ministers but also of representatives of regional governments. The national coordination group is comparable with the RAO and is comprised of officials at the 'non-political' level. National working groups on specific issues often have a few members coming from regional working groups in order to facilitate the linkage between national and regional activities. In addition chairpersons of regional working groups of all sub-basins meet frequently to discuss progress in the sub-basins and to comment on and contribute to the work of national working groups.

The Netherlands River Basin Coordination Office coordinates the activities between the national and the regional level as well as between the eight sub-river basins. The objective of this coordination is to ensure the timely production of regional components that must be included in the official reports to the EU, which means that the regional components must meet the qualifications set in the WFD and that they must be consistent with the national policy. The river basin coordination office, which is in essence a special unit concerned with linking the national level with the regional level, plays a pivotal role in the successful implementation of the WFD. Decisionmaking at a national level does not automatically mean that everywhere regional governments immediately take action according to decisions made at the national level. On the other hand, decisions, opinions and experiences at the regional level do not always reach the decisionmaking process at national level. A key task of the Netherlands River Basin Coordination Office is to keep this top-down and bottom-up communication going.

Figure 17: Coordination Structure for the WFD Implementation

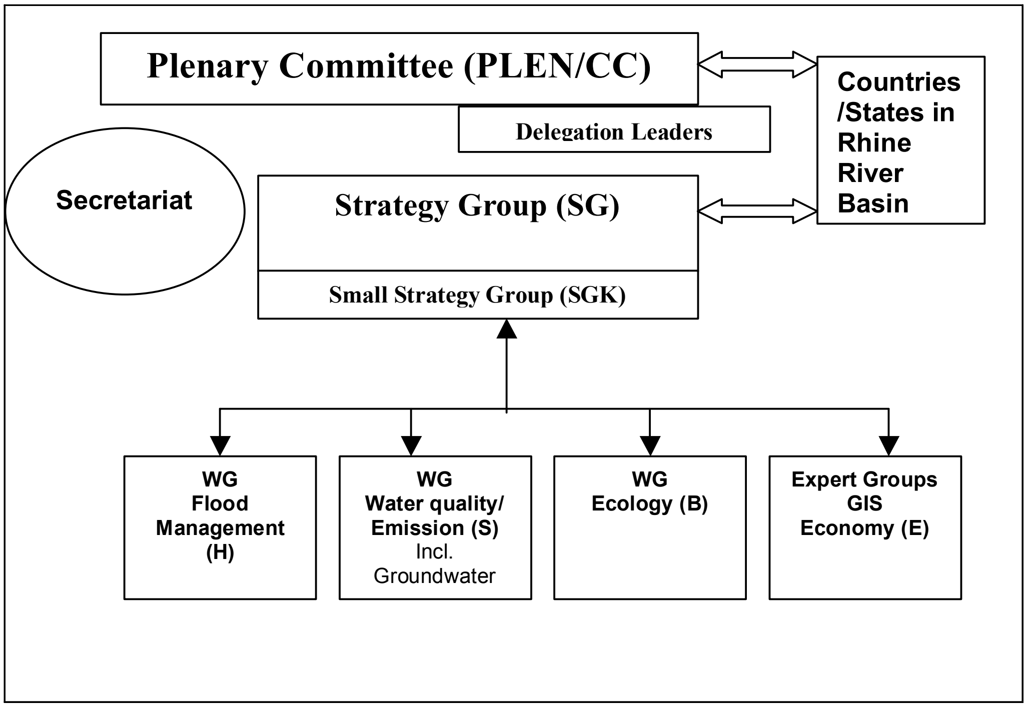

Coordination
Minister
RBO (Regional Committee)
LBOW (national steering committee)
Netherlands River Basin Coordination Office
National coordination group
RAO (Regional coordination group) + project office
Regional working groups
National working groups

2. International Cooperation in the Rhine River Basin

The Rhine River Basin is an important basin in the Netherlands and covers a large part of its territory. It has been divided into working areas and it is worth noting that some of these working areas are international. This is unlike the Meuse River Basin and the Ems River Basin where working areas are national.

The existence of international working areas means that two or more countries may need to cooperate in a Rhine working area in order to produce the Part B Report submitted to the European Commission. International cooperation in the working areas of the Rhine requires intensive regional cooperation. For instance, in the case of Germany where water management is the responsibility of the *Länder* (regional states), three to four *Länder* may have to cooperate in order to produce the river basin management plan for the area. Figure 18 below provides the organizational structure of the International Rhine Commission.

Figure 18: Organizational Structure of the ICPR



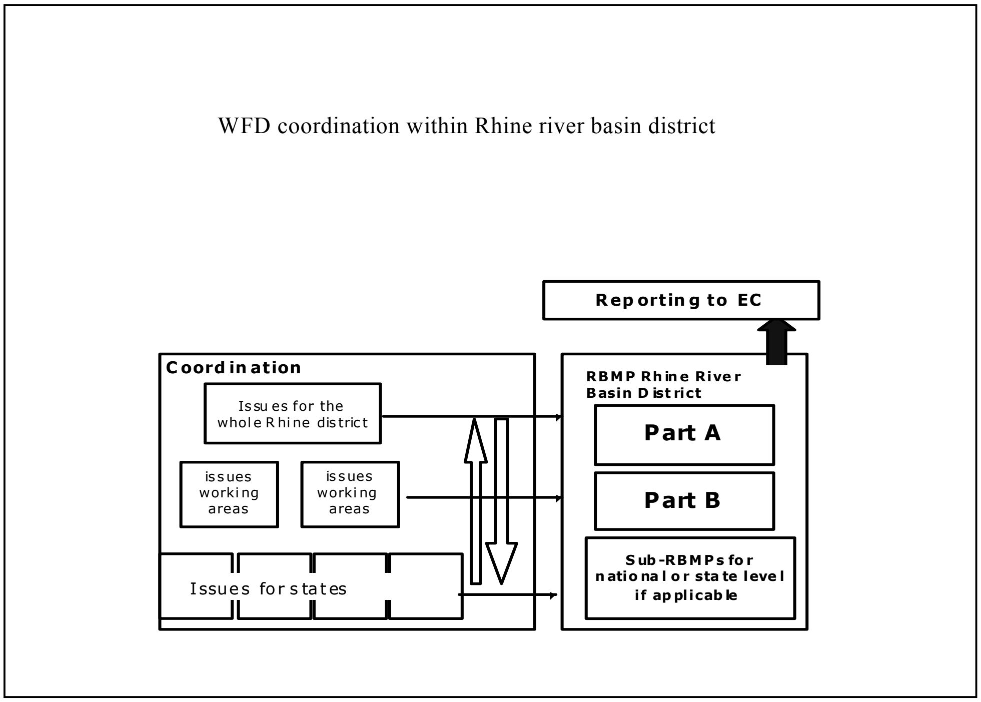
Plenary Committee (PLEN/CC)
Delegation Leaders
Countries /States in Rhine River Basin
Secretariat
Strategy Group (SG)
Small Strategy Group (SGK)
WG Flood Management (H)
WG Water quality/ Emission (S) Incl. Groundwater
WG Ecology (B)
Expert Groups GIS Economy (E)

Figure 19 provides an elaboration of the coordination undertaken in the Rhine Commission for the implementation of the WFD. It is worth noting that issues are divided into issues that affect the whole Rhine district, issues that affect the working areas and issues that affect the states. The management of the top-down, bottom-up relationships among the district, the working areas and the states is not always easy.

The principles that govern the WFD coordination in Rhine River basin district involve:

- Respect for the responsibilities of member states towards the EC;
- Essential consistency of national approaches but not (complete) harmonization;
- Coordination of water management issues at the appropriate level (river basin, working area, nation-state);
- Careful selection of the appropriate level of coordination in advance;
- Special attention to upstream – downstream relationships; and
- Agreement on common reporting, data exchange and processing, and monitoring.

Figure 19: Coordination for the Implementation of WFD (Rhine Commission)


WFD coordination within Rhine river basin district
Reporting to EC
Coordination
Issues for the whole Rhine district
issues working areas
issues working areas
Issues for states
RBMP Rhine River Basin District
Part A
Part B
Sub-RBMPs for national or state level if applicable

It is important to underline here that state parties are looking for consistency among the national approaches to water regulation and not for complete harmonization. Complete harmonization may not be possible at present because of the divergence of national systems. For instance, the French-German working group aimed initially at complete harmonization of approaches in order to submit the article 5 report to the European Commission. The group held seventy meetings in order to try to achieve complete harmonization but it was not successful. Most EU countries with a long history in water management face often a huge internal struggle on how to regulate water while simultaneously accommodating the requirements of the WFD. For instance, in Germany, the sixteen länder (states) have the responsibility to reach agreement on harmonized methodologies for water management. After the länder reach agreement, through a number of painstaking and time-consuming efforts, to go back to them and ask them to modify some elements of their agreement, so as to accommodate international cooperation, seems unfathomable.

Another lesson learnt from the cooperation in the Rhine River basin is that the selection of appropriate level (national, working area, international) where cooperation will take place should be examined carefully. Not all issues are appropriate for international fora and some issues can and should be resolved more suitably at the local level. Furthermore, it is important to pay special attention to upstream–downstream relationships. Discussions on the upstream – downstream dynamic should start early in the transboundary context.

3. Conclusion

Given its strong existing institutional framework for water management, the Netherlands has chosen to implement the WFD using the existing water management authorities (national and provincial governments, waterboards and municipalities). To meet the demands of the WFD a coordination structure has been set up for each of the eight sub-river basins. This structure functions quite well and has resulted in improvement of cooperation between water management authorities at various levels. A cyclical planning process has been chosen to allow for sufficient time and moments of interaction in order to support the development of river basin management plans within the coordination structure. The almost simultaneous multi-level decisionmaking process developing in 2008 and 2009 will present a major challenge for the coordination structure.

The cyclical planning process within the sub-river basins in the Netherlands facilitates cooperation within international commissions. In principle, coordination in water management should be kept at the lowest level. Thus, international river basin commissions can focus on those issues that require coordination at the river basin district level. These issues and the related measures to be taken, are analyzed in the part A reports submitted to the European Commission that provide an overview of a river basin. Part A reports provide guidance for the harmonization of approaches of member states and regional states that are members in international commissions. Complete harmonization of national approaches, though, is not necessary (and practically impossible). National approaches should, instead, be consistent with each other so as to achieve a degree of harmonization that would enable meaningful international coordination.

Danube – Europe's heritage, Europe's challenge: The Danube Tourist Commission as a Stakeholder in the ICPDR Process

Gerhard Skoff

1. Introduction

Throughout humankind's history navigable waterways have been the arteries of states and continents, of trade and transportation. They have served as the paths of great civilizations and the "growth-lines" of nations. Rivers shape and form the lives of those who live along their banks.

For the Romans, the Danube was frontier and barrier, for the Nibelungen, a route of travel, for Prince Eugene of Savoy in the seventeenth century, a triumphal thoroughfare in his wars against the Ottomans, and for Napoleon, the Danube was nothing less than the "Queen of Rivers."

Almost every foot of the river reflects Europe's rich culture and turbulent history. In recent times the Danube witnessed the rise of the 'Iron Curtain,' the fall of the Soviet empire in 1991, and the expansion of the European Union in 2004. The river's story is told by the cities, monasteries, castles, palaces and battlefields, the enchanting landscapes and imposing natural wonders that line its path to the sea. Indeed, no fewer than ten UNESCO World Heritage Sites are situated on or near the river.

The Danube is Europe's second longest river after the Volga and the continent's favorite river destination. With its rich history and varied landscapes, the river is known all over the world thanks to Johann Strauss' immortal Blue Danube waltz.

A voyage on the Danube is a journey in time and space, packed with encounters with people, places, feelings and memories. The Danube is past, present and future. The Danube is a "movie for the soul".

Today too travelers yearn for adventure, for new experiences. The times are past when sun, surf and all-inclusive packages were the *non plus ultra* of vacation longing. New destinations and new types of holidays are now in demand. Vacationers want to learn about other peoples, how other people live, their history, culture and environment.

Discovery and experience are the order of day. And the Danube perfectly matches holidaymakers' new expectations, because the Danube stands for adventure, fantasy, culture, music, peoples and landscapes, and *joie de vivre*.

The Danube region is home to some 200 million people. This dependence on the river, in turn, gives rise to expectations of being able to derive a livelihood and benefit from the Danube and its resources.

As Austria's former Vice Chancellor Erhard Busek once said,

> It is high time that the Danube, buffeted by war and crisis, is used in a positive way. As a visible symbol of the new Europe the Danube could become a river of peace and cooperation. To this end it is necessary to recognize priorities, for we all want a “beautiful blue Danube”.

2. The Danube Tourist Commission

Motivated by the importance of tourism, and in spite of their differing economic and political systems, four Danube countries — Austria, Germany, Romania and Bulgaria joined together to establish the Danube Tourist Commission. The year was 1972, when no one could foresee the fall of the Iron Curtain. The commission can, thus, justly claim to be the first tourism organization in the world to have spanned the great political and ideological divide. Today the Danube Tourist Commission counts Germany, Austria, Slovakia, Hungary, Croatia, Serbia, Bulgaria, and Romania as members, represented by their national tourism organizations. Ukraine and Moldova are the only Danube states that are not yet members of the commission.

With the fall of the Iron Curtain in 1989, the vision of the Danube Tourist Commission’s founders of a common future for all nations along the Danube appeared to be on the verge of fulfillment. Then the Balkan conflicts seemed to put an end to this vision. The belief in the future held the countries together, however, and today Croatia, Serbia, Montenegro, and Romania are full members of the Danube Tourist Commission. The new Sloboda Bridge and the demolition of the pontoon bridge at Novi Sad in October 2005 have made the Danube navigable again without interruption or hindrance down to the delta.

The Danube Tourist Commission is a non-profit association with headquarters in Vienna. The status of the commission, whose members are national tourism organizations and associates, enhances its role as an impartial partner in its cooperation with various public institutions. This way the commission affords access to national and international institutions and authorities. In recent years, “cooperation” and “synergies” have become kind of catchwords. The Danube Tourist Commission has explored synergies with other institutions long before such pursuit became a trend. Thus, the commission has been able to secure important advantages for its members.

The Danube Tourist Commission endeavors to work with EU bodies, as well as regional and national Danube organizations. As part of these activities mutual memberships were established in 2004 with the:

- Working Community of Danubian Regions (ARGE Donauländer);
- Institute for the Danube and Central Europe (IDM);
- International Commission for the Protection of the Danube River (ICPDR); and
- Danube Cooperation Process.

Close links are also maintained with

- EU Corridor VII (Danube)/Tina Vienna Transport Strategies;
- “The Route of Emperors and Kings – Regensburg to Budapest”;

- The Vienna UNESCO association.

The Danube Tourist Commission aims to carry out effective destination marketing for the river and the surrounding region (70km on each side of the river) in collaboration with the commission's members and partners. Effective destination marketing means showcasing the attractions of a Danube holiday and spotlighting what makes the area unique and different from competing destinations.

To complement the Danube's central marketing claim, "The Danube—A River's Lure", special marketing themes are adopted each year. The following themes were adopted between 2000 and 2006.

2000—"The Danube–River of Faiths"
2001—"The Danube–Bridges, Routes and Piers"
2002—"Danube Spirit"
2003—"The Danube–Man, Myths and Tales"
2004—"The Musical Danube"
2005—"The Danube–Landscapes of Passion"
2006—"The Danube–Pure Pleasure"

These annual themes aim to highlight the diversity of the region, provide a stage for joint activities, and stimulate, among potential guests, the desire to experience the Danube. The Danube region is an attractive holiday destination, which appeals, in particular, to travelers thirty years of age and older. Guests come mostly from Europe, the United States and Japan. The principal motivation for visiting the Danube is the unique natural environment, followed by relaxation, the region's rich cultural heritage, history, art and sport, as well as the desire to get to know the area and its peoples.

3. The Importance of Tourism for the Danube Countries

Tourism is a growth industry. The outlook for tourism is optimistic. Despite terrorism, natural catastrophes and high oil prices, the international travel business has continued to grow, expanding in 2005 by more 5.5 percent and recording 808 million travelers. Tourism on the Danube and along its banks is definitely expanding as can be fathomed by the increase in the numbers of cruise ships (see Table 5).

Table 5: Tourism in the Danube River

Season	Number of cruise liners
2003 season	75 cruise liners
2004 season	84 cruise liners
2005 season	99 cruise liners
2006 season	109 cruise liners

The comparative data for ships, dockings and passengers for 2005 and 2006 in selected cities are provided below.

Regensburg
2005: 350 dockings, approximately 100 passengers per ship
2006: 390 dockings announced

Passau
2005: 87 ships and 1 440 dockings; approximately 150 000 passengers
2006: 90 ships announced: increase in number of passengers by 10 000

Vienna
2005: 151 000 cruise passengers aboard 98 ships
2006: 109 cruise liners announced

Slovak Shipping (PAD)
2005: 27 307 passengers from cruise liners
(Bratislava total: 120 000)

Belgrade
2005: 410 dockings, 49 000 passengers

Novi Sad
2005: 220 dockings, 26 000 passengers

Romanian Danube delta
2005: 60 000 ship passengers, of which 28 000 aboard cruise liners

Danube Bicycle Trail, Wachau
2005: 120 000 active visitors

Overall it could be said that the Danube finds itself in a challenging competitive environment. With a market share of 35 percent it continues to be the leader in river cruises. Danube, in terms of tourism, is at this point ahead of the Nile, the Rhine, the Main, the Vistula or the Elbe. Competition, however, is growing and is becoming steadily more intense.

The Danube countries view tourism as an important economic sector and, thus, as a motor for job creation and professional training. Tourism provides — directly and indirectly — employment for up to three million people and it is the ground for 500 000 training places. One million new jobs could be potentially created in the next ten years.

Stiffer competition, high expectations and demands of the region's people (especially on the lower and middle course of the Danube) and the scenic beauty that travelers seek must be reflected all on the tasks and aims of the ICPDR.

4. Sustainable Development of the Danube River

To ensure the sustainable and equitable use of water resources in the Danube basin the following are necessary:
--an emergency warning system;
--a transnational monitoring network for water quality; and
--an information system for the Danube ("Danubius").

Furthermore, it is necessary to safeguard Danube's water resources for future generations in order to ensure the elimination of excess nutrients, the reduction of risk from toxic chemicals and prevention of damages from flooding.

Snow in the mountains, heavy rainfall along the river and in its catchment areas often destabilize the environmental balance and bring into sharp focus the neglect and errors of the past. Economic activities, the needs of the population — not least in terms of employment prospects — political programs and the need to preserve the environment underline the importance of bringing human activity and nature along the river into harmony. Promoting a sustainable symbiosis between humans and nature in a way that ensures the survival of both and the use the Danube as a "river of life" call for responsibility, respect, creativity and innovation.

Public Participation Strategies and Methods: Perspectives of an International Secretariat

Jasmine Bachmann

1. Introduction

The Danube River Basin is the catchment area of the second largest river (2 780 km) in Europe and covers 817 000 km² in nineteen different countries. This makes the Danube basin the world's most international river basin. More than eighty one million people — with different cultures, histories and languages — from the Black Forest down to the shores of the Black Sea, call the Danube basin their home.

Since rivers know no borders, it is only through a joint effort of the basin countries that environmental problems of the Danube River basin can be addressed. The Danube River Protection Convention (DRPC) [1] was developed in response to this realization and came into force in 1998. Today, thirteen Danube River Basin countries employ the convention as the legal basis for their efforts to ensure the protection and sustainable use of water and other ecological resources. In addition to the European Union, parties to the Convention include: Germany, Austria, the Czech Republic, Slovakia, Hungary, Slovenia, Croatia, Bosnia-Herzegovina, Serbia[4], Bulgaria, Romania, Moldova and Ukraine.

To make the DRPC a living tool, the International Commission for the Protection of the Danube River Basin (ICPDR) has been created. Since its establishment, the ICPDR has grown into one of the largest and most active international bodies with river basin management expertise in Europe.

2. Strategy for Public Participation

The active involvement of the public is a core principle in sustainable water management. This basic fact was already recognized when the DRPC was signed. The involvement of the organized public in the framework of the implementation of the convention, in other words, was clearly anticipated.

To date, twelve organizations have taken the opportunity to become involved and have become observers to the ICPDR. Observers have the right to participate in ICPDR decisionmaking and in expert group meetings. Granting observer status to various stakeholder organizations has proven to be successful and has ensured the influence of diverse aspects and approaches on the shaping of water management in the Danube River Basin.

The involvement of the public in the ICPDR proceedings has been enhanced further by the requirements of the EU Water Framework Directive (WFD) [2],which mandate the involvement of the public in river basin management. The WFD sets standards and requirements for its member states. The ICPDR, therefore, —being the coordinating

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[4] In June 2006, Serbia and Montenegro split into two different countries. Discussions about the ratification are currently under way in Montenegro.

Observers to the ICPDR (as of May 2006)

- Black Sea Protection Commission
- Danube Environnemental Forum (DEF)
- Danube Navigation Commission
- Danube Tourism Commission
- Global Water Partnership (GWP)
- International Association for Danube Research (IAD)
- International Association of Water Supply Companies in the Danube River Catchment Area (IAWD)
- International Hydrological Programme of UNESCO
- RAMSAR Convention on Wetlands.
- Regional Environmental Center for Central and Eastern Europe (REC)
- VGB Power Tech e.V.
- WWF International

platform for the implementation of the WFD on issues of basin-wide concern — has viewed the WFD as an opportunity to review its ongoing practices. The ICPDR started an active process of defining a “Danube River Basin Strategy for Public Participation in River Basin Management Planning 2003-2009. ” The ICPDR is also developing “ICPDR Operational Plans” on an annual basis.

To produce meaningful results, public participation must be organized at various levels.
With regard to the Danube River Basin, these levels are the:

- international or “roof” level (Danube River Basin);
- national level (the key “implementing” and management level);
- sub-basin level (transboundary and /or national);
- local level (where the WFD is actually “implemented”).

All four levels are required to ensure the success of any activity at any single level. The “roof” level is important as it provides the framework for coordination throughout the river basin. There are of course differences between the levels depending on: stakeholders involved, types of activities, timetable of these activities, management and coordination needs.

Activities at the ICPDR level are developed in detail and summarized in the “ICPDR Operational Plan” on an annual basis. Operational plans provide a description of the activities at the roof level, including a timetable. Operational plans are viewed as a planning tool and are regularly adjusted according to the needs and the requirements of the Danube River basin countries. It is remarkable that thirteen countries of a large river basin have embarked on a process of developing a coherent approach and of jointly developing tools for public involvement.

3. Danube River Basin Stakeholder Conference

In addition to the active involvement of stakeholder groups in the ICPDR activities, an initiative was undertaken in June 2005 to further enhance the dialogue with other stakeholder groups, currently not holding an observer status.

On June 29, 2005, the official Danube Day, the ICPDR Secretariat in close cooperation with Hungary, which held ICPDR Presidency in 2005, organized the Danube River Basin Stakeholder Conference. Organizational and financial support for the conference was provided by the European Commission, the Global Water Partnership Hungary, the REC and the UNDP/GEF Danube Regional Project.

The goal of the conference was to enter into a constructive dialogue with the wider stakeholder groups and to receive feedback on the Danube Analysis Report 2004 [3] as well as the ICPDR Flood Action Program [4]. The two-day conference proved to be an important tool to build trust and to strengthen the cooperation with the stakeholder groups.

In addition to the Conference Report [5], which summarizes the discussions and feedback received, an additional written feedback process has been launched. The purpose of the written feedback process is to provide another opportunity to raise concerns on the conclusions reached by the Danube Analysis Report and on the goals of the ICPDR Flood Action Program.

Various expert groups of the ICPDR are currently deliberating the feedback received from stakeholders. By the beginning of 2007 the ICPDR is expected to issue a report on how the dialogue with stakeholders has shaped the work of the ICPDR and has influenced the development of the Danube River Basin District Management Plan [6].

4. Danube Day

Based on the success of the first Danube Day in 2004, the celebration of the Danube River Basin continued in 2005 and 2006. On June 29, every year, the anniversary of the signing of the Danube River Protection Convention, people all over the Danube Basin join forces and celebrate the Danube region and its rivers. Under the slogan, "Everybody lives downstream," a wide diversity of activities and events take place each year. Television and radio spots (for instance in Serbia, Montenegro, Hungary, Bulgaria), newspaper advertisements (in Romania, Moldova, Slovakia) and other means of publicity motivate people to think about the Danube Rivers and their importance.

Public private partnership in support of Danube Day

In June 2005, a partnership agreement was signed between the Coca-Cola Company, Coca-Cola Hellenic Bottling Company and the ICPDR. The purpose of the agreement is to provide technical and financial support for the Danube Day celebrations at the national and international levels. Strong support for the Danube Day was provided by Serbia and Montenegro, Bulgaria, Romania, Hungary and Slovakia. Remarkable support was evident at the basin wide level.

The ways that the Danube Rivers have been celebrated have been as diverse as the culture and languages that exist throughout the basin. For instance in the 2005 celebrations of the Danube Day,

- Within the framework of the 50th Tour International Danubien (TID), more than 100 people canoed and rowed down the Danube;
- Over 50 people cycled from Vienna to Bratislava, waving the flag of Danube Day;
- A blue ribbon – from Danube exhibition to Danube exhibition – was marking Budapest;
- A Danube festival took place in Belgrade;
- Thousands of children were involved in the International Danube Art Master, a school competition organized by the national water ministries in cooperation with the DEF and the ICPDR each year.

A comprehensive description of the activities can be found on the website of Danube Day: www.danubeday.org

Overall, the approach taken by the ICPDR with regard to public participation has proven to be successful and stakeholder groups are actively involved in the work of the commission and its expert groups. The ICPDR approach, that involved a number of efforts including the Danube River Basin Stakeholder Conference, seems to be more cost-efficient than an approach that engages stakeholders in parallel processes.

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Public Participation in the Drafting of the River Basin Management Plans in Greece

Maria Ghini

1. Water resources management in the Mediterranean Region

Greece is a Mediterranean country and, thus, it encounters water management issues that are typical of the Mediterranean region. One of the main problems encountered in the Mediterranean is that water supply is not adequate to meet demand and that water resources are not equally distributed. Water quality is often at stake. In Greece about 65 percent of drinking water is coming from groundwater resources and this often leads to the overexploitation of such resources. Due to the overexploitation of groundwater, 50 percent of the wetlands are in danger. The increase of irrigated land by 25 percent since 1985 has meant that more water is needed for irrigation.

The scarce water supply in combination with the general deterioration of water quality limits the availability of water for various uses. This could generate water shortages that would undermine the pursuit of growth and development. Integrated water resources management, therefore, is necessary for the region in order to balance the demand and supply for water. Integrated water resources management today, though, is a target rather than a reality. The use of non-conventional water supply options, such as desalination and wastewater reuse, may become necessary. Greece is trying to avoid for the time being the use of non-conventional water supply options.

2. River Basin Management Planning in Greece

The development of RBMPs in Greece is an on-going process that started a few months before the adoption of 2003 law that transposed the WFD. The budget for the development of the river basin management plans is 6 453 500 euros. The budget is co-financed (50/50 percent) by the European Fund for Regional Development and the Hellenic National Fund. The project is expected to finish by the end of 2006 or the beginning of 2007. The project is still executed by the Ministry of Development, which was the responsible Ministry for water management in Greece before the enactment of the 2003 law. The river basin management plans, after their completion, will be transferred to the Ministry of Environment and Public Works that is now the ministry in charge of the WFD implementation.

River basin management plans cover the fourteen water districts in Greece. The drafting of such plans has been assigned to four consortia. The consortia have undertaken the following projects:

- River basin management planning for Central Greece. This project includes the River Basin Management Plans for the water districts of West Sterea Hellas, Epiros, Attiki, East Sterea Hellas and Thessalia.
- River basin management planning for Peloponisos. This project includes the river basin management plans for the water districts of West Peloponisos, North Peloponisos and East Peloponisos

- River basin planning for the North of Greece. This project includes the water districts of West Macedonia, Central Macedonia, East Macedonia, and Thraki.
- River basin management planning for the islands of the Aegean Sea.

Crete had developed a river basin management plan a few years before the river basin management plans for the rest of Greece took off. The Grete river basin management plan and its drafting process have been used as a pilot for drafting the river basin management plans for the rest of Greece.

3. Public Participation in the Drafting of River Basin Management Plans

The objectives of public participation involve the:
--development and delivery of high quality river basin management plans — including the public's opinion about what would increase the quality of such plans;
--proper and efficient implementation of such plans. It is important not to create paper RBMPs but plans that are actually implemented on the ground.

The key elements of public participation include:
--establishing good relations with key stakeholders, social actors and water authorities;
--reaching out to different and diverse audiences;
--working with the public and helping to develop an understanding of the WFD impact on society; and
--ensuring the active involvement of all stakeholders.

The first cycle of public participation in Greece involved fourteen workshops — as many workshops as the water districts. The organizing committee for the workshops was comprised of:
--the Ministerial Committee for the Supervision of Projects (that was set by the Ministry of Development);
--Supporting Committees in which various institutes were involved such as the Institute for Geology and Mineral Exploration;
--Private Contractors (the four consortia that have been involved in the drafting of the river basin management plans); and
--and regional authorities from each of the fourteen hydrological districts.

The fist cycle of workshops that took place in each region involved presentations by the officials of the Ministry of Development to the public. The purpose of these presentations was to provide information about the WFD and to decipher the intentions of the public with regard to participation. The workshops included a presentation on river basin management planning as it affected a specific region as well as a presentation of the WFD and its requirements for public participation. Furthermore, the procedure for the development of river basin management plans was explained to the public. The Crete water district presented information on the procedures that should be incorporated with regard to obtaining the consent of the public on river basin management planning. After the conclusion of the workshops, the public was asked to provide the authorities with written feedback.

The second cycle of workshops is about to begin. When this second cycle begins, the draft RBMPs will be available for public comments. The development of effective measures for the implementation of the WFD is to be discussed during the second cycle of workshops. The comments of the public will be taken into consideration and a written report will be prepared. This report will explain how the comments of the public are taken into account in the drafting of the RBMPs.

A wide range of participants have attended the workshops initiated by the Ministry of Development including:
--Regional authorities;
--Prefectures;
--Municipal authorities;
--Ministries;
--Non-governmental organizations;
--Research institutes and universities;
--Mass media (national and regional newspapers, radio and specialized journals).

4. Obstacles to Public Participation

The public participation process, as it has been executed so far, has not produced optimal results:
--the public hardly attends the meetings and this is so even if the date and place of meetings are in accordance with the requests of various stakeholders;
--people usually discuss their problems, are very enthusiastic and they make for a very lively audience. However, they hardly contribute with written proposals.

The lack of information is a detrimental factor. Obviously, if information is lacking, one should expect a low level of public interest. The institutional mechanisms are also weak especially because water management responsibilities have been moving from ministry to ministry. It is hard to coordinate activities when things are in a perpetual state of movement. Further implementation is hampered because of the general lack of infrastructure both in terms of human and other resources. The lack of strong institutional support eventually leads to inefficient public participation procedures. Despite the difficulties involved in initiating and sustaining public participation, one has to keep in mind that public participation is a process. Policymakers cannot afford not to work with the people when they are making decisions about water use.

Implementation of the Water Framework Directive in a Transboundary Context: Partial River Basin Management Plan for the Hornad/Hernád River

Petur Farkas

1. Background Information about the Regional Environmental Center for Central and Eastern Europe

The Regional Environmental Center for Central and Eastern Europe (REC) is an independent international organization established in 1990 by Hungary, the United States and the European Commission. Today this non-advocacy, not-for-profit organization is legally based on a charter signed by the governments of twenty-eight countries and the European Commission.

The REC works in various fields of sustainable development on many issues, such as environmental policy, biodiversity, climate change, renewable energy, environmental information, environmental investments, law drafting, sectoral integration and waste management. Activities are conducted in Central and Eastern European (CEE) countries, and beyond. The REC is headquartered in Szentendre, Hungary, and has offices throughout the region with a staff of close to two hundred people comprised of some thirty nationalities.

The REC's mission is to assist in solving the environmental problems of the CEE by promoting cooperation among non-governmental organizations, private institutions, governments, businesses and other stakeholders, and by promoting the free exchange of information and public participation in environmental decisionmaking. Through its activities, such as training programs, pilot projects, environmental assessments, analytical studies, educational packages, and grants, the REC seeks to support CEE countries in various political and economic fields. The Center also provides a bridge for transferring regional and global experience to the CEE countries.

2. Development of the Partial River Basin Management Plan for the Hornad/Hernád River

The EVD (formerly Senter International, a background institute of the Dutch government) has contracted a consortium consisting of the Ameco Environmental Services (Dutch consulting company), the Tauw bv (Dutch consulting and engineering company) and the REC to provide assistance to the Hungarian and Slovakian governments on the implementation of the Water Framework Directive in a transboundary context. Besides the private contractors, RIZA (the Dutch national research institute for inland waters and wastewater treatment) and two Dutch waterboards, namely De Dommel and Regge en Dinkel are part of the consortium.

The goal of the consortium is to develop a partial transboundary RBMP for the Hornad-Hernád Basin according to the transboundary principles of the Water Framework Directive (art. 13 and annex VII). The project is expected to increase the knowledge and expertise of the competent national and regional Hungarian and Slovak authorities through the dissemination of lessons learned from the transboundary process. The project is expected to produce a proposal for a common Hungarian-Slovak system of monitoring.

The Hungarian Directorate for Environment, Nature and Water and the Slovak Water Management Enterprise are considered the beneficiaries of this project. Within the Hornad-Hernád River basin, the regional branches of national institutions are involved in the project:
the Bodrog-Hornad Enterprise (the regional branch of the Slovak Water Management Enterprise); the North Hungarian Directorate for Environment and Water; the North Hungarian Inspectorate for Environment, Nature and Water and the respective National Park Directorate.

Besides the beneficiaries and the parties, various consultants and research institutes have been involved in the project. As a matter of fact, much of the actual work on numerous WFD issues has not been executed by the beneficiaries but by the research institutes. Such institutes include the Slovak Water Research Institute, the Hydrometeorology Institute (Slovakia), the Faculty of Civil Engineering at the University of Budapest and the VITUKI research institute (located in Hungary).

The Hernád River basin belongs to the Middle Danube River basin covering an area of about 5 430 km² that is spread over two countries (Slovakia 4 427 km² and Hungary 1 013 km²). The length of the river is 294 km of which 186 km are located in Slovakia and 108 km are located in Hungary. In Slovakia 687 709 inhabitants are located around the river basin while in Hungary 80 875 people live there.

There is a huge difference between the Slovakian and the Hungarian part of the river basin. The Hungarian part is a typical rural area. The Slovakian territory is urbanized and highly industrialized. Urbanization and industrialization indicate high amounts of discharges of wastewater.

As required by the WFD with regard to the identification of water bodies, in the Hernád basin sixty-seven water bodies have been identified. Forty-two of these water bodies are located in Slovakia and fifteen water bodies are located in Hungary. The water bodies are characterized mostly as natural and heavily modified. There is only an artificial water body, an irrigation canal located in Hungary. The number and types of water bodies are significantly higher on the Slovakian side. This is due to the fact that fourth-fifths of the basin belong to Slovakia and that, in terms of geomorphology, the Slovakian part of the territory is much more diverse.

Since the Hernád river basin project is a pilot project, it has not covered all components of a River Basin Management Plan as listed in annex VII of the WFD. The project has concentrated on the following aspects of the river basin management plan: the identification of characteristics of the river basin, the pressures and impacts of human activity, the examination of monitoring mechanisms, the promulgation of environmental objectives and the program of measures. Due to the limited budget and time, only existing data have been used for the project.

Several institutions have provided data for the execution of the project including the:
--Slovak Hydrometeorology Institute (SHMU);
--Water Research Institute (VUVH), Bratislava;
--Environmental Protection and Water Management Research Institute (VITUKI), Hungary;
--Budapest University of Technology and Economics (BME);
--Hungarian Ministry of Environment and Water (KvVM); and
--Hungarian Central Statistical Office.

The project has encountered several challenges. To begin with, the collection of data has not been easy. There was a lack of data on many of the issues the project attempted to address. It has been hard also to identify which institution has ownership of the data. Furthermore, Slovakia and Hungary have used different methodologies in their collection of data and different projections for the GIS system.

The identification of environmental objectives has been hampered by the lack of a common method. The consortium has tried to use a stepwise approach, a modified, "pragmatic method" for identifying environmental objectives. While, based on the official approach, the starting point is the reference conditions, in the pragmatic approach the starting point is the present situation. Because of lack of research and monitoring results only the hydromorphological elements and water quality indicator are considered. However, the Hungarian ecologists who are involved in the project are not supportive of such an approach.

With regard to monitoring, Hungary and Slovakia have used different monitoring networks. While hydrological monitoring is in place in both countries, setting up a chemical and biological network is under development.

Other challenges that the project has encountered have to do with the changing institutional framework in Hungary. The responsibilities of water administration in Hungary are fragmented and different departments and institutes deal with water management issues. Furthermore, there has been no active public involvement. The economic analysis of water use has yet to be performed. In general, 2015, the year in which good status for all waters has to be achieved, seems to many like a far off deadline.

A successful stakeholder meeting was held on May 9th and 10th of 2006. For practical reasons, two separate discussions took place, one in Slovakia and the other in Hungary. During the stakeholder meeting participants underlined the importance of flood protection and of tackling wastewater issues and various economic aspects of water management. It was realized that for many small settlements, the treatment of wastewater is an issue. Some of the questions revolved around whether to build treatment plans for agglomerations or for individual households. The effectiveness of wastewater treatment methods and the identification of financial resources were further discussed during the stakeholder meeting.

The 2006 stakeholder meeting attracted many participants including:
--the Hungarian Ministry of Environment and Water;
--national and regional authorities;
--the Center and Public Collections of Water Management in Hungary, Directorate of Water;
--North Hungarian Environment and Water Directorate;
--North Hungarian Inspectorate for Environment, Nature and Water;
--National Park Directorates of Hungary;
--the Water Management and Soil Protection Company for the Hernád region (a public company, located in Encs, Hungary);
--the Settlement Association for Regional Development (a public company for consulting, grant-writing, economic development, resource management - located in Encs, Hungary);
--Mayors; and
--NGOs.

3. *Lessons Learned*
Overall the Hernád project has demonstrated that there is partnership among the experts from the two countries and that there is a mutual understanding of the issues affecting each country. Furthermore, the bilateral agreements provide an adequate institutional and legal framework for cooperation. Both sides have experts that are conversant with the WFD implementation.

The lessons learned from the WFD implementation include the following:
--river basin management planning depends on WFD implementation in both countries; therefore, the execution of the project is dependent on external factors;
--not all the aspects of WFD can be completely harmonized;
--since many organizations are involved, coordination is very important;
--public participation is important in all aspects of WFD implementation.

In order to involve the public and, more specifically, the local people in the WFD planning process, public education and an increase in public awareness are crucial. Independent institutes, NGOs and associations that represent the public should have a key role in the WDF implementation process as it is unfolding based on expertise knowledge.

The Dutch Polder Model: Evolution and Current Role of Waterboards

Rob Uijterlinde

1. Structure of Water Management in the Netherlands

The 'waterschap' (waterboard) is an institution that has been developing in the Netherlands since the 13th century and it is based on stakeholder participation. Today waterboards are regional water authorities employing about 11 000 people.

The administrative organization of water management involves, at the center, the Ministry of Transport, Public Works and Water Management that is the competent authority for water management. At the regional level, the country is divided into provinces and municipalities. There are twelve provinces and more than 400 municipalities. The twenty-six waterboards are regional water authorities that deal with water management under the supervision of the provinces. The tasks of waterboards involve:

- Flood protection (against the sea, rivers, lakes, canals);
- Surface water quality and quantity, that is integrated water resources management (which includes irrigation, drainage, planning, licensing and monitoring);
- Urban wastewater treatment.

The table below provides an overview of the competent authorities for water management in the Netherlands (Table 6).

Table 6: Competent authorities in water management in the Netherlands

	Surface Water	Surface Water	Groundwater
	National Water System	Regional Water System	
Strategic Policy Making	State	Provinces	Provinces
Implementation, Operation and Management	State	Waterboards	Provinces and Waterboards

2. The Waterboards

In the 1950s, the number of waterboards in the Netherlands were 2 500. These were very local waterboards. Waterboards, though, eventually evolved and merged with each other and today we have a total of 26 waterboards. As waterboards have merged and, thus, have become larger, their operational reach is beginning to interfere with that of the provinces. Sometimes, therefore, there is tension between the waterboards and the provinces with regard to the respective responsibilities of each institution.

One of the financing principles that waterboards have used with regard to the achievement of water quality is the polluter pays principle. This principle is pertinent as it applies to point sources of pollution but not necessarily to diffuse sources of pollution, such as agriculture. For flood protection and the management of water quantity the principle that applies is the triplet— interest-pay-say. This means that those who have an interest in the management of water must pay taxes for such management in order to have a say in water management. In 2004, an average household, based on this triplet, cost-recovery principle, had to pay the following amounts: 16 euros for flood protection, 54 euros for water management and 150 euros for wastewater treatment, which aptly demonstrates that the majority of the revenues of waterboards come from pollution levies.

Since waterboards achieve 98 percent cost recovery based on taxation, they have become self-financing and more or less autonomous organizations. Funding for water, therefore, is not a decision to be made yearly at the national level in conjunction with multiple other decisions that may not give water the priority it deserves. Resources for water management are already embedded in the financing structure of waterboards, although the Minister of Finance sometimes likes to re-open the discussion regarding the self-financing of waterboards.

The waterboards are based on the democratic principle and elections of waterboards take place every year. These elections are not based on political parties but on the categories of stakeholders. These categories of stakeholders are:
--residents;
--business/industry;
--landowners/farmers; and
--real estate owners.

Stakeholders are members of the General Assembly of a waterboard. The size of the different categories of stakeholders differs per waterboard. Waterboards that manage the water resources of a rural area have a strong representation of farmers. While waterboards that manage water resources of an urban area have a strong representation of residents.

In addition to the Assembly, which is made of representatives of all stakeholders, waterboards are governed by an Executive Board. The chairperson of this Executive Board is appointed by the Queen.

3. The Planning Process for the Development of River Basin Management Plans

In the planning process for the implementation of the WFD, the provinces have an important role to play both with regard to the drafting of the water management plans and to the execution of such plans. Every year the provinces send a letter to the Parliament on their position on water management. In terms of the operation of water management system, various software tools have been used that facilitate, *inter alia*, the calculation of costs given the ecological quality that is desired to be achieved in a particular water environment. These software tools facilitate also communication with stakeholders. Further, for the implementation of the WFD, multi-annual planning documents are necessary. The election process of the assemblies of waterboards is a way for people to express their intentions about the different elements of the WFD.

The involvement of various levels of administration is important in water management. The Ministry of Transport, Public Works and Water Management is focused on water management and steers the process of WFD implementation. The waterboards are organizations dedicated to water management. An implementation problem has been presented, though, with sustaining the attention of provinces and the 467 municipalities to water management. Eventually twenty-five people were appointed as water ambassadors to try to motivate the municipalities to proceed with their planning process. The involvement of stakeholders is also important and waterboards are learning a lot in this respect from abroad, for instance from the South African River Forums. These informal forums serve as example for stakeholder involvement in the Friesland province of the Netherlands.

4. Conclusion

Waterboards are suitable organizations for water management in the Netherlands. Waterboards are very knowledgeable of the technical issues in water management and try to bring other parties on board. However, it is a challenge for autonomous organizations, such as the waterboards, to balance the top-down, bottom-up relationships. For instance, the definition of water bodies has been an issue. The various waterboards have come up with different definitions, while, from a national perspective, harmonization based on a standard approach is preferred. The implementation strategy demands a careful balance between top-down and bottom-up initiatives. The national WFD implementation strategy provides guidance. The administrative burden of WFD implementation is felt at all levels. Sometimes it is easier to build consensus between water authorities (ministry and waterboards) rather than with authorities of general interest (provinces, municipalities).

The Role of European Landowners' Organization in the Implementation of the Water Framework Directive

Leticia Hernando

1. The Main Activities and Objectives of the European Landowners' Organization

The European Landowners' Organization (ELO) is an umbrella organization of national associations of landowners.

The ELO has the following objectives:

- Promotion of private entrepreneurship as a tool for socio-economic prosperity and environmental sustainability in European rural areas;
- Provision of information on actions, functioning and rules of the European Union;
- Promotion of balance between rural and urban areas;
- Provision of legal and political information to members;
- Provision of expertise on rural related issues (CAP, Natura 2000, property rights);
- Promotion of new solutions for rural areas.

The tools that the ELO is using to achieve its objectives include:

- Communication (the Countryside Magazine which includes news on EU developments; awards that encourage sustainable development and the protection of natural resources);
- Liaison (the ELO office in Brussels acts as a liaison office for national associations);
- Development of model solutions;
- Network. The ELO acts as a network for the exchange of information among its member associations.

One of the focus areas of the ELO is to assist in the protection of natural resources. This is a focus area for the ELO because:

- Landowners have a strong desire to pass on their land in good condition to their children and grandchildren.
- The quality and value of land are mainly determined by its soil, climatic and water conditions. Water is a vital element of every ecosystem and every landscape.
- The efficient use of natural resources and the exchange of experiences stimulate the future development of rural areas, in particular relating to sustainable land and water management.
- The importance of landowners' role as users, co-managers and even suppliers of water resources.

2. The Role of the ELO in the Water Framework Directive Implementation

The ELO, as a European umbrella organization, is involved in the implementation process of the WFD, namely the strategic coordination group, the strategic steering group on WFD and agriculture, the strategic steering group on hydromorphology, and the working group on flood risk and management. The ELO intends to participate in the working group on WFD and climate change when such working group is established.

The ELO adds value to the process of WFD implementation. Through its participation in the various working groups, the ELO seeks to improve the perception that other stakeholders have of landowners' activities and their impacts on water. The ELO stresses that landowners and land managers can make a valuable contribution to water quality, future water management and flood prevention. Taking into account the available resources and relevant timeframes, the ELO further plays a key role in identifying instruments and measures within the Common Agricultural Policy (CAP) and the Rural Development Programs (RDPs) which can be used to help landowners and land managers achieve the WFD objectives. The ELO promotes the adoption of best practices and incentives, and provides its expertise on other Community policies linked to water resources, for example: the Nitrates Directive, pesticides, and the NATURA 2000 network.

The ELO's key priorities on water are:
--to identify win-win solutions where nature protection and human needs can be simultaneously met;
--to promote cost-effective land management measures that protect water resources;
--to work towards the establishment of workable, legal and policy tools at the European, national and local levels;
--to contribute to the challenges and opportunities for rural areas in the implementation of the WFD, considering social and environmental factors;
--to identify and develop existing and future mechanisms and measures within the CAP and RDPs (cross-compliance, agri-environmental schemes) that could help meet the WFD objectives.

The European Agricultural Fund for Rural Development (EAFRD) provides the opportunity for member states or regions to prepare RDPs inclusive of projects related to water that would be eligible for financing under the fund. RDPs could involve:
--investment in water infrastructure, water management, management of flood and drought risk, promotion of clean technologies and rehabilitation of contaminated sites (restoration of wetlands and floodplain areas);
--strengthening the planning process (land-use plans, reforestation strategies, plans for nature protection areas, coastal management);
--building awareness and the exchange of ideas to identify opportunities;
--establishment of voluntary initiatives with local support networks that are more effective and cost less;
--exploration of partnerships between water companies and land managers.

3. Awards for Sustainable Agricultural Practices

Overall, landowners and land managers seek to strengthen the link between environmental protection and economic growth. The ELO believes that the work executed by many landowners should be recognized. These landowners have attempted to improve water conditions and water supply in rural areas with good quality water.

Landowners execute many activities that are directly or indirectly linked to water quality management. Such activities include the maintenance and restoration of wetlands and floodplain areas, which serve as filters in a river basin system, and the building and maintenance of dams that increase the supply of fresh water (provided that dams do not cause other problems)

Good examples of landowners' projects that have invested in water improvement include:

--"La Cassinazza" (Italy) www.lacassinazza.it;

--"Salins du Midi" (France) www.salins.com;

--"Veta de la Palma" (Spain) www.vetalapalma.es.

The ELO tries to provide incentives to its members to promote sustainable development through various awards such as:

- "ELO Wetlands and Water Award." The purpose of the award is to encourage the protection, conservation and sustainable management of water resources and water shaped habitats.

- "Environment and Soil Management Award." The idea behind the award is to encourage sustainable soil management and the pursuit of soil protection.

- "Natura 2000 Forest Award." This award is given to forest practitioners or managers who combine good forest management with the protection of natural resources.

- "Anders Wall Award." This is an award for individuals who have made a special contribution to the rural environment within the European Union. Such contribution could include: the preservation and enhancement of landscape and/or biodiversity, the preservation of rural cultural heritage and the contribution to sustainable local economic development.

- "Belleuropa Award." It is a prize awarded to agricultural companies that are a model of third generation agricultural production and have supported agro-environmental measures.

These awards are co-financed by the European Community and other organizations.

Developing a River Basin Management Plan for the Ribble: Lessons Learned and Future Direction

Daniel Bond

1. Introduction

Across Europe the implementation of the Water Framework Directive offers new challenges. The directive not only builds on, and encourages environmental improvement but also represents a ‘step change’ in the management of water environment. Involving people in all stages of the planning and implementation of the directive is key to its delivery.

Lessons learned from the Ribble can provide an insight into river basin planning for the Water Framework Directive while supporting the development of European best practices. This paper provides an overview of what has been delivered in the Ribble Basin and what can be learnt from the Ribble Pilot project.

In 2003, the government of the United Kingdom transposed the Directive into the legislation, and in doing so, identified the Environment Agency as sole competent authority charged with the WFD implementation in England and Wales.

To prepare for implementation the Environment Agency has established a national WFD program. The purpose of the program has been to interpret the requirements of the directive. The program aims to produce guidance as well as to coordinate and to deliver the technical capability within the agency for the implementation of the directive in England and Wales. The program includes a number of projects, including the Ribble Pilot River Basin Project.

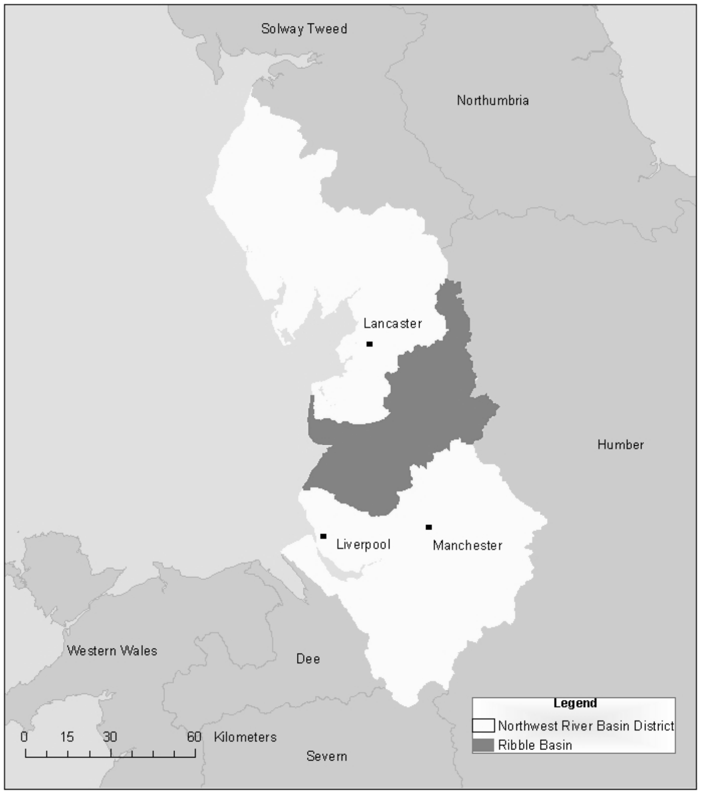
The European Commission in order to guide and support member states in interpreting the WFD has initiated pilot studies. Nineteen Pilot River Basins (PRBs) have been nominated by member states for the purposes of testing the applicability of the requirements of the Common Implementation Strategy and of sharing best practices. The River Ribble is one of the pilot river basins. Through the pilot of the River Ribble, the United Kingdom has tested the requirements of the Common Implementation Strategy with regard to public participation and river basin planning (Fox et al, 2004). The PRB network exercise is now in its second phase. During this phase the Ribble Pilot contributes to the EC strategic steering group “on agriculture and the WFD.”

In addition to testing the Common Implementation Strategy, the Ribble Pilot forms an integral part of the Environment Agency’s Implementation Program, through testing and developing national guidance for England and Wales. As part of the national implementation program, the pilot will produce a prototype integrated river basin management plan.

2. The Ribble River Basin

The Ribble basin is located within the North West River Basin District of England (Figure 20). The River Ribble rises in the Pennine hills to the west of the basin and flows 110 kilometers before running into the Irish Sea, near Preston.

Figure 20: Ribble Basin and North West River Basin District



At a size of 2 568 km², the basin has a population of 1.25 million and exhibits a variety of land uses. Although the basin is predominantly rural, there are a number of urban areas, including Preston, Blackburn, Wigan and Blackpool. There are numerous areas protected for their conservation value and many of the rivers provide good habitat for salmon.

The upper basin is dominated by agriculture. Here, diffuse pollution is regarded as one of the main environmental issues. Elsewhere the industrial areas of East Lancashire reflect altogether different pressures on the water environment. Flows in the rivers are largely natural, although a number of public water supply reservoirs regulate the flow on several rivers. Annual precipitation ranges from 850 mm to 1700 mm per year in the upland areas. There is a large coastal area, with nine bathing beaches and the largest tourist destination in Northwest England, Blackpool.

3. River Basin Planning

The Water Framework Directive introduces a management framework based on river basin districts (RBD). It requires the preparation of RBMPs that will set out the protection and restoration measures necessary to achieve environmental objectives.

The directive requires that environmental objectives must be coordinated for a whole river basin district. Furthermore, a river basin management plan has to be produced for each of the eleven river basin districts that are situated in England and Wales. The Ribble is one of several sub-river basins within the larger North West RBD. As such, it provides an opportunity to examine how river basin planning may operate at the basin (sub-district) scale.

Since some RBDs are large and environmental pressures are complex, it is necessary for planning purposes to subdivide RBDs into basins (catchments). The United Kingdom has carried out water management planning on a river basin scale for over twenty years, and has developed a number of different types of river basin management plans. At present, the Environment Agency and other institutions use separate plans for different aspects of water management. These plans that address specific aspects of water management have played an important role in producing the improvements seen in recent years. However, the Water Framework Directive demands improved coordination of water management within a single process — integrated river basin management.

Given the multitude of existing plans, there is scope for more coordination of river basin planning. As a matter of fact, many common planning principles complement the river basin planning process. A more integrated approach will increase effectiveness and efficiency as long as ‘on the ground’ delivery is not affected. In addition, streamlining and coordinating public participation will help mitigate consultation fatigue for organizations that need to encourage participation and organizations that participate in river basin planning.

As it is well known, reporting to the European Commission with regard to the implementation of the WFD must occur at the river basin scale. Furthermore, for each water body an environmental objective has to be set. Mechanisms to achieve the environmental objective have to be laid out in an action plan, the program of measures. Therefore, it is imperative that activities are coordinated across the many water bodies within each RBD.

4. Public Participation

The objectives of the Water Framework Directive can only be fully achieved through close, ongoing cooperation of a wide range of stakeholders. A major challenge will be adopting effective participation tools to supplement and enhance the planning process and, in particular, to engender ownership and delivery of the issues and solutions. To support this, it will be crucial to share with stakeholders the process, for instance the methods we use to tackle problems of water management. We need to be very clear to set out what stakeholders can contribute to the water planning process and how and when stakeholders can influence or advise the decisionmaking process. In practice, stakeholders should be involved as appropriate in particular decisionmaking contexts, taking into account the WFD timetable, the complexity of the issues involved or the opportunities for influencing decisions.

The RBD level will be the primary focus for public participation in England and Wales, with Liaison Panels established for each RBD. These panels will consist of up to fifteen strategic co-deliverers, including bodies with statutory powers and others (for example navigation authorities, recreation groups, specific industrial sectors) that will put measures into action (Table 7). Because interests and issues will vary across RBDs, the liaison panels will have some flexibility in membership.

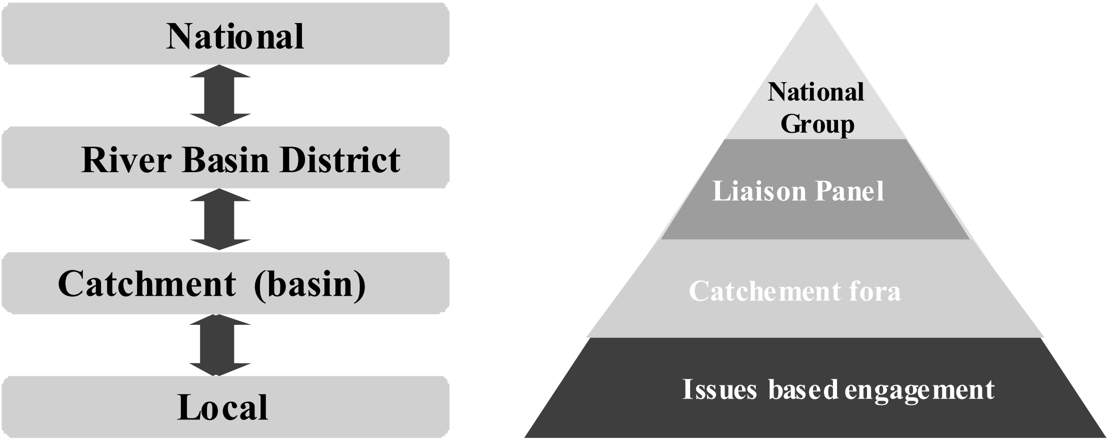
Table 7: River Basin District Liaison Panel Membership

Environment Agency (Competent Authority)
Regional Government Office
Regional Assembly
Regional Development Agency
Water Company
Agriculture representative
Industry representative
Natural England
Environmental NGO (e.g. WWF)
Consumer Council of Water (public consumer body)
5 additional places for other specific interests

However, as previously stated, the basin (or catchment) is the vital scale for planning and participation. This is the scale that has been tested through the Ribble Pilot (for the different scales of public participation, see Figure 21). Through the Pilot we have tested a series of participation approaches investigating their applicability and effectiveness. Stakeholder mapping and communication planning are crucial tools during the early phases and should be endorsed as best practice. The use of more passive tools, such as the internet are also successful in providing information.

Effective public participation for river basin planning requires clear processes and structures to be established or the continuation of existing process that has to be adapted to the river basin planning process. The Ribble has demonstrated the value of developing a forum including the key stakeholders in the basin. In addition to the central forum, meetings are held with expert or specialist groups to provide opportunities for more targeted dialogue and to assist in developing solutions for technical problems. This enables stakeholders to help develop options and ‘own’ the problems, and, thus, develop a closer involvement in the delivery of solutions. Which stakeholders should participate in which working groups should be determined by the issues to be addressed. Working groups are likely to vary in size, composition, membership and duration depending on the complexity of the issue and stage in the planning process. In addition, this flexible approach supports the risk-based concept of the Water Framework Directive. The directive introduces this risk-based approach, whereby we begin river basin planning by identifying the major risks, and developing programs of measures to manage these risks. This means we can target our engagement at the issues that we identify.

Figure 21: River basin planning scales and methods of engagement



5. Lessons Learned from Ribble

Testing new approaches in the Ribble basin has developed our knowledge of river basin planning, especially with regard to the implementation of the WFD. In particular there are several key learning points we can adopt as we begin to implement the WFD elsewhere, including:

--There is no blueprint for effective participation; issues and interests will vary from basin to basin, and we must adapt the public participation approach to fit those issues and interests accordingly. We must develop a transparent yet flexible process that can deliver environmental improvements.

--Participation and planning effort must be proportional to the issues we face, the WFD promotes a risk-based approach so we must target our effort. The directive gives us an opportunity to streamline and integrate our existing processes and build on existing best practice. This approach would lead to a more effective and efficient process and would be more advantageous to our stakeholders.

--We must actively engage our co-deliverers to encourage their buy-in. We must work together with them to improve the water environment and support our cooperation with targeted engagement.

--Planning and participation must be co-coordinated across different scales, from the river basin district to the water body level. At the RBD we will work closely with stakeholders who operate at that scale. At the basin scale we will actively involve local level stakeholders and groups who represent water users. At the local level (water body) we will work more closely with those who deliver and manage the water environment at that level. At each level we will work closely with those who can deliver or influence (see Figure 21).

--It is important to keep the public participation process simple. The WFD introduces a whole new language and process for managing the water environment. We must use a flexible approach involving stakeholders in issues where we really need them to get involved. Furthermore, stakeholders who wish to get involved must not become overburdened.

6. Conclusion

The Ribble Pilot project has supported the development of tools for and approaches to river basin management planning. The experience with the Ribble Pilot project has influenced river basin management approaches throughout England and Wales and the further development of the Ribble project is integral to the work executed in other river basins.

The Ribble basin will continue to be used as the "test basin" for the Environment Agency for elements of technical and procedural guidance as they develop. The project team will continue to work closely with key partners and stakeholders to explore methods and techniques for engaging regional and local stakeholders in the river basin planning process. The project will also provide stakeholders with an improved understanding of how the directive will impact their activities.

Finally, results from trials in the Ribble Pilot River Basin provide an insight into the key principles of integrated river basin management. How the various components of integrated water resources management will fit together with the aim of improving our water environment is one of the great challenges of the Water Framework Directive.

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The Future of Integrated Water Resources Management

Elli Louka

River basin district planning with public and stakeholder involvement is, one could say, the constitutional component of water resources management in the European Union. The theme that underlined this conference is that as long as the constitutional layout of the directive is applied, the quality of implementation depends on the institutional infrastructure put in place to realize the constitutional underpinnings.

As the national experiences with the implementation of the WFD demonstrate, there are some common themes among the countries that have applied the directive. Most countries have designated a ministry (usually a ministry of environment) to assume the role of the competent authority in the WFD implementation. A number of other ministries and institutions (i.e. regions, districts, municipalities) are to cooperate with the lead institution in water management. Furthermore, river basin planning is usually undertaken by central institutions through their branches or is executed through existing regional arrangements. Functionally and financially independent river basin authorities are nascent in most states while there is certainly a pull to the direction of creating more autonomous bodies.

In other words, countries have not rushed to decentralize or create new authorities for the implementation of the Water Framework Directive. There are many reasons for this including the fact that most national experiences presented at the conference involved member states of central and eastern Europe that have been experimenting with decentralization/privatization since the early 1990s. Many member states are still involved in demarcating the jurisdictional boundaries between established institutions and newer authorities. Superimposing river basin district authorities on an already overloaded administrative structure would certainly not be the most thoughtful option. This, however, does not mean that further decentralization should not be encouraged as countries are becoming more confident that regional and local institutions are ready to function based on principles of financial responsibility, accountability and transparency that should characterize local government.

By its nature the WFD involves the coordination of many national and sub-national institutions. A problem that may be encountered, as the implementation of the WFD envelops into the future, has to do with the development of institutional rivalries and the creation of institutional veto players. Rivalries can emerge when the competencies of institutions entrusted with implementation are not clearly delimited in practice. Often when several institutions have similar competencies and overlapping jurisdiction, institutional competition may ensue. Institutions could compete among themselves for the power, prestige and resources that come with the implementation of a directive that is expected to change the water management sector in many member states.

With regard to public participation, two models of such participation were presented at the conference. One of them is more of a formal model in which government authorities and various stakeholders congregate in river basin committees that function as consultative bodies in river basin management. This government-cum-water user model of participation has been espoused in many countries and justifiably so. Water managers know fully-well that those likely to veto the RBMPs are most likely other government authorities for which water management may not the central focus of their activities. Involving the regions, municipalities, port authorities and sea authorities in deliberations that take place in a river basin could be the decisive factor that makes the difference between the verbal endorsement of a RBMP and the actual implementation of such a plan. On the other hand, crowding river basin committees with state representatives and organized water users could undermine more spontaneous and *ad hoc* modes of public participation, for instance when citizens form *ad hoc* groups to address specific problems that affect them locally. Accommodating change in participative arrangements could go a long way to ensure the relevance of institutions enabling such arrangements.

Another more cogitative question about public participation has to do with the rationale of prescription of public participation for the purposes of WFD implementation. According to the prevalent approach, public participation is an efficiency mechanism since, by including the views of all stakeholders, it is hoped that consensual arrangements can be achieved that would lessen the need for enforcement. Another approach views public participation as a mechanism that is supportive of the democratic process. According to this approach, the satisfaction of citizens becomes an important metric for the success of public participation. When the goal of participatory processes is the pursuit of democratic governance, the metric to be used is the cultivation of better citizens willing to participate in the common affairs. Yet another view presents public participation as an instrument that could be used to make better public policy. It is believed that if all interests and positions of stakeholders are included in the decisionmaking process, the unavoidable result will be a better public policy. The metric in this case has to do with whether the policies adopted under a public participation scheme are, indeed, better than the policies adopted without public participation (see Table 8).

Table 8: Functions of Public Participation

Goal	Metric
Democratic Process	Citizens are satisfied because they are engaged in the decisionmaking process
Efficiency	Reduction of transaction and compliance costs
Better Policy	Compare similar policies adopted with public participation with policies adopted through non-participative proceedings

In other words, the metrics that should be used to measure the effectiveness of public participation proceedings should vary with the goals that a public institution wishes to achieve. It is important to note, at this juncture, that the purpose of public institutions is the pursuit of public good. No matter how nebulous the concept of 'public good' may be, public institutions need to devise ways that would allow for the concretization of public good in a specific context. If the pursuit of public good were not enshrined in the consciousness of public institutions, the temptation to succumb to the relativism of interest-based reality would be greater. It is true that many interests attempt to shape the direction of public institutions. The notion of 'public good' could be used as navigation device that can ensure that, while various interests are taken into account, they do not dictate the making of public policy.

The role of pubic participation as a mechanism that propels the democratic process brings to the fore the type of democracy that is generated through a mixture of representative and functional democracy and also through various more direct democratic modes as they are pursued today via electronic means, such as electronic referenda. The challenge today is to devise participatory systems that are not necessarily based on interest, as it is understood in terms of the organized interests that rule societies, but that are grounded on the broad-based interests of a citizenry that cannot avoid but living locally but yet is affected by transnational developments beyond its reach.

The Water Framework Directive is not only a decentralization instrument. It simultaneously mandates centralization at the international level, since the international river basin district is the 'final' river basin district, the level from which it makes sense to strategically coordinate river basin management. One of the issues that may be encountered at the international level has to do with the multiple parallel processes and institutions that are not necessarily conversant with other. Coordination among these institutions may become a trying experience. States sometimes resent the internationalization of river basin management as it slows down domestic application. Having said that, it is international coordination through bilateral and multilateral arrangements that could bring some sort of rationality and coherence in many upstream-down stream relations. Bilateral arrangements are to flourish in the future, as more coordination among local water authorities is likely to become prevalent in river basin planning.

The European Union is often referred to as the example of multilevel governance, as various functions happen simultaneously at the EU, international, national and sub-national levels. What is interesting in this function of multi-level governance is how international arrangements are now transformed into EU arrangements as many international commissions are becoming the platforms for WFD implementation. What is remarkable here is that some of these international commissions are not comprised solely of EU member states yet the transformation of the commissions into coordinating platforms has had the effect to pull along some non-member states into the WFD implementation.

Overall the implementation of the WFD requires a confident state that is able to decentralize at the domestic level and able to centralize at the international level. Furthermore, as decentralization is taking place at the domestic level it is often fueled by trans-governmental, sub-national arrangements. A question that is often asked about the European Union is whether it needs to abolish the state to create a borderless union. The question that should be investigated, instead, is how the EU member state is launching sub-national trans-governmental networks that reduce the relevance of national frontiers but yet bolster its own relevance as the shaper of policies on the transnational scale.

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